

# Sumas Terminal

## Evacuation Plan



## **SUMAS TERMINAL EVACUATION PLAN**

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## **PLAN MAINTENANCE**

### **Responsibility**

Single point accountability for the Trans Mountain Sumas Terminal Evacuation Plan (the Plan) development and maintenance rests with the Manager, Emergency Management. This accountability is for:

- The development of the Plan and management of any future revisions.
- Ensuring the Incident Command System (ICS) and response structure are in place and able to meet the requirements set out in the Plan.
- Ensuring an annual review of the Plan is conducted for completeness.

Plan holders are responsible for:

- Keeping their copies current and ensuring that all revisions are appropriately filed.
- Studying all new material issued and incorporating it into their work practice.
- Suggesting changes to correct existing materials and contributing new content to improve the quality of the Plan.

### **Plan Revisions**

All revision requests must be made through the Manager, Emergency Management using the Revision Request Form located in this section of the Plan.

### **Revision Distribution**

Plan revisions are issued with an Acknowledgement of Receipt Form and a brief description of the changes itemized by section. The Acknowledgment of Receipt Form must be signed and returned to the Emergency Management Department as specified.

Revisions to the Distribution List will be maintained in a secure electronic location managed by Trans Mountain Corporation and will be distributed to confidential Plan holders only. All other revisions will be distributed to Plan holders in a timely manner. A revised date is shown at the bottom of each updated or new page. The original date of the Plan is 07/2022. All revisions will be tracked on the Control Sheet.

### **Revisions after an Incident or Exercise**

In the event that Trans Mountain experiences an incident (worst case or otherwise) or conducts an exercise or training session that uses this Plan, the effectiveness of the Plan will be evaluated and updated as necessary or no longer than every three years.

### **Changes in Operating Conditions**

If a new or different operating condition or information would substantially affect the implementation of the Plan, Trans Mountain will modify the Plan to address such a change.



**Control Sheet**

<b>Revision Number</b>	<b>Date of Revision</b>	<b>Change(s)</b>	<b>Approval</b>
0	July 21, 2022	Manual submitted as per Trans Mountain Expansion Project CER Condition 123 <i>Evacuation Plans</i>	K. McLernon
1	April 30, 2023	<p>Revised Section 1.0, Introduction</p> <p>Added additional legislation references to Section 1.5 Legislation</p> <p>Content revised in Section 2.0, Roles and Responsibilities</p> <p>Re-ordered parts of Section 3.1, Hazards</p> <p>Added Section 3.1.4, Other</p> <p>Revised Section 4.2, Protective Action Zone</p> <p>Added Section 6.0, Initial Incident Public Safety Transition</p> <p>Revised Section 7.1, Vulnerable Groups to be a stand-alone section</p> <p>Revised Section 7.4, Notifications</p> <p>Edited Appendix A, Glossary and Acronyms</p> <p>Edited Appendix B Roles and Responsibilities for Responding Agencies and Assisting Entities</p> <p>Addition of Appendix C, Initial Media Holding Statement</p> <p>Addition of Appendix D, Evacuation Procedure</p> <p>Addition of Appendix E, Standards For Potential Chemicals of Concern: Sources and Detection Limits</p> <p>Addition of Appendix F, Vulnerable Groups Within The Protective Action Zone For Sumas Terminal</p> <p>Re-ordered Appendices</p>	
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## 1.0 **INTRODUCTION**

### 1.1 **Purpose**

This Trans Mountain Sumas Terminal Evacuation Plan (the Plan) describes the measures Trans Mountain personnel complete, in conjunction with those with the authority to issue evacuation orders or shelter-in-place alerts, during an emergency at the Sumas Terminal (the Terminal) that may require the evacuation or shelter-in-place of the surrounding community. The Abbotsford Fire Rescue Service is the responding first responder and the local authority, along with assisting entities.

When an emergency is declared at the Terminal, and it has been determined that the incident poses a risk to the public, which may require the implementation of public safety measures, this Plan will be activated.

Trans Mountain will supply incident-specific information to assist in the decision to evacuate and supply resources (financial, human, etc.) to the local authority, as needed, to implement public protection measures.

The local authority has the authority to declare a State of Local Emergency (SOLE) in situations where an emergency is imminent or existing to support the implementation of public safety measures.

### 1.2 **Scope**

This Evacuation Plan covers:

- The initial actions that Trans Mountain personnel will take to establish the Initial Isolation Zone and to evacuate the area to mitigate *immediate* danger to life and health.
- The actions that the local authority, as well as all other relevant government departments and assisting entities, may complete to implement the appropriate safety measures to mitigate potential impacts to the public arising from an incident at the Terminal, with assistance from Trans Mountain, as required.

Public safety measures within the scope of this Plan include two types of evacuation:

- Evacuation (of area)
- Shelter-in-place

This Plan was developed in consultation with the Abbotsford Fire Rescue Service and considers the City of Abbotsford's evacuation planning and preparedness procedures.

This Plan is intended to be activated in coordination with the City of Abbotsford. The Plan should also be activated in conjunction with:

- Trans Mountain Terminals Emergency Response Plan (Terminals ERP);
- Trans Mountain Public Health Assessment and Response Plan for Airborne Health Risks Associated with Pipeline/Terminal Operations and Incidents; and
- Sumas Terminal Fire Pre-plan and applicable tactical workbook.

This Plan is considered a subset of Terminals ERP and has been developed to align with the Incident Command System (ICS).



### 1.3 Out of Scope

This plan does not cover the following:

- Evacuation of the Sumas Terminal itself (for further information refer to the Sumas Terminal Site Safety Plan);
- Procedures for the evacuation of individual buildings;
- Long-term shelter-in-place;
- Evacuation of livestock;
- Re-entry of evacuees;
- Specific evacuation procedures to be taken by local authorities and all other relevant government departments and assisting entities.

### 1.4 Plan Implementation

When an emergency is declared and it has been determined that the incident poses a risk to the public, which may require the implementation of public safety measures, this Plan will be activated.

Activation of the Terminals ERP will occur when an emergency at the Terminal is declared by Trans Mountain. The Trans Mountain Public Health Assessment and Response Plan for Airborne Health Risks Associated with Pipeline/Terminal Operations and Incidents will be activated in conjunction with the Terminals ERP and supports the implementation of public protection measures.

### 1.5 Legislation

As stated in the *Environmental Management Act*, SBC 2003, c. 53:

#### Section 91.2 – Responsible Persons – Spill Response

- (2) Subject to the regulations, if a spill occurs or is at imminent risk of occurring, the responsible person in relation to the spill must ensure that the actions necessary to address the threat or hazard caused by the spill are taken, which actions may include, but are not limited to, the following actions, if applicable:
- (a) assess, monitor and prevent, or prevent the continuation of, the threat or hazard caused by the spill;
  - (b) stabilize, contain, remove and clean up the spill;
  - (c) identify and evaluate the immediate risks to and impacts on the environment, human health or infrastructure and, as necessary,
    - (i) advise persons to take protective action in relation to the spill,
    - (ii) protect infrastructure, and
    - (iii) protect, recover and restore the environment;
  - (d) identify and evaluate the long-term impacts of the spill;
  - (e) take steps to resolve or mitigate those immediate and long-term impacts.

#### Section 91.4 – Government Spill Response

- (1) The government may carry out actions described in Section 91.2 (2) [*responsible persons — spill response*] if an officer considers that:
- (a) a spill has occurred or there is an imminent risk of a spill occurring,
  - (b) action is necessary to address a spill or the risk of a spill or to resolve or mitigate long term effects of a spill, and
  - (c) one or more of the following apply:
    - (i) there is no responsible person in relation to the spill;

- (ii) an officer has reasonable grounds to believe that government action is required to safeguard the environment, human health or infrastructure;
- (iii) the responsible person in relation to the spill requests that the government assist with spill response and recovery actions.

As stated in the *Emergency Program Act*, RSBC 1996, c 111:

#### Section 6 – Local Authority Emergency Organization

- (1) Subject to sections 8 (2), 13 (2) and 14 (3), a local authority<sup>1</sup> is at all times responsible for the direction and control of the local authority's emergency response.
- (2) Subject to subsection (2.1), a local authority must prepare or cause to be prepared local emergency plans respecting preparation for, response to and recovery from emergencies and disasters.

#### Section 8 – Implementation of Local Emergency Plans

- (1) A local authority or a person designated in the local authority's local emergency plan may, whether or not a state of local emergency has been declared under section 12 (1), cause the plan to be implemented if, in the opinion of the local authority or the designated person, an emergency exists or appears imminent, or a disaster has occurred or threatens in
  - (1) the jurisdictional area for which the local authority has responsibility, or
  - (2) any other municipality or electoral area if the local authority having responsibility for that other jurisdictional area has requested assistance.

As stated in the *Fire Services Act*, RSBC 1996, c. 114:

#### Section 25 – Emergencies

- (1) If an emergency arising from a fire hazard or from a risk of explosion causes the fire commissioner to be apprehensive of imminent and serious danger to life or property, or of a panic, the fire commissioner may immediately take the steps he or she thinks advisable to remove the hazard or risk.
- (2) For the purposes of subsection (1), the fire commissioner may evacuate a building or area, and may call on the police and fire prevention authorities who have jurisdiction to provide assistance.
- (3) If the fire commissioner believes that conditions exist in or near a hotel or public building, that, in the event of a fire, might seriously endanger life or property, the fire commissioner may immediately take the action he or she believes advisable to remedy the conditions to eliminate the danger and may evacuate and close the hotel or public building.
- (4) For the purposes of subsection (3), the fire commissioner may call on the assistance of peace officers and fire prevention authorities.

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<sup>1</sup> Local authority, as defined by the *Emergency Program Act* (1996) (British Columbia) means:

- For a municipality, the municipal council,
- For an electoral area in a regional district, the board of the regional district, or
- In British Columbia, First Nations communities with treaty agreements have the powers and obligations of local authorities under British Columbia's *Emergency Program Act* and its regulations. In this context, "local authority" also means a Treaty First Nations community, the Chief, and Council.
  - Treaty First Nations are considered a "local authority" for the purposes of the *Emergency Program Act* per the Government of Canada and Province of British Columbia bilateral agreement on emergency management support services to on-reserve First Nations.

As stated in the *Public Health Act*, SBC 2008, c. 28:

Section 31 – General Powers Respecting Health Hazards and Contraventions

- (1) If the circumstances described in section 30 [when orders respecting health hazards and contraventions may be made] apply, a health officer may order a person to do anything that the health officer reasonably believes is necessary for any of the following purposes:
  - (a) to determine whether a health hazard exists;
  - (b) to prevent or stop a health hazard, or mitigate the harm or prevent further harm from a health hazard;
  - (c) to bring the person into compliance with the Act or a regulation made under it;
  - (d) to bring the person into compliance with a term or condition of a licence or permit held by that person under this Act.

## **2.0 ROLES AND RESPONSIBILITIES**

In the event of an incident at the Terminal, Trans Mountain will liaise with those with the authority to issue evacuation or shelter-in-place orders through Unified Command (UC), and/or in concert with their own Emergency Operations Centre (EOC), if activated. The entities identified in Appendix B *Roles and Responsibilities for Responding Agencies* and assisting Entities, will be notified of the incident and invited to participate in Trans Mountain's Incident Command Post (ICP) as members of the Incident Management Team and/or within the Liaison Office.

### **2.1 Trans Mountain Roles and Responsibilities**

Trans Mountain is responsible for:

- Taking immediate action to identify the hazards and/or potential hazards that may arise from an incident at the Terminal.
- Confirming the parameters of the Initial Isolation Zone and implementing the appropriate safety measures to protect people and property.
- Providing hazard-specific and technical information to the local authority to aid in the determination of public safety measures required for the community surrounding the Terminal.

As the incident evolves, Trans Mountain is responsible for providing updated information to the local authority to support the ongoing assessment of risk to the public and the implementation of public safety measures, as outlined in Section 7.4, Notifications.

Trans Mountain support may include, as requested, the sharing of personnel and resources to aid in the preparation and execution of the local authority's evacuation procedures.

Financial compensation for the consequences arising from an incident at the Terminal is the responsibility of Trans Mountain. The Finance and Administration Section of the Incident Management Team will communicate with displaced residents to address concerns and settle and/or resolve damage claims arising from the incident.

### **2.2 Unified Command Roles and Responsibilities**

Trans Mountain uses ICS. If Unified Command is established, invitations would be extended to the City of Abbotsford, Sumas First Nation, British Columbia Ministry of Environment and Climate Change Strategy, and the Canada Energy Regulator (CER) to participate. If Unified Command is established, it will fulfill the following responsibilities.

Unified Command's responsibility during an incident is to provide overall guidance and support to respond to the incident at the Terminal. This is achieved through the drafting of key objectives, identifying response priorities, and following an inclusive decision-making process. Unified Command sets the direction of response activities including developing and implementing strategic decisions, endorsing Incident Action Plans (IAPs), and approving the order and release of resources. The Unified Command maintains situational awareness of the incident and its evolving hazards and will confirm the local authority has updated information to aid in its decision-making on public safety. Members of the Unified Command will support the local authority in the implementation of the public safety measures.

### 2.3 Local Authority Roles and Responsibilities

The local authority has the authority to declare a State of Local Emergency (SOLE) in situations where an emergency is imminent or existing.<sup>2</sup> Declaration of a SOLE, as outlined by the *Emergency Program Act* (1996) (British Columbia), provides a local authority with expanded powers to do all acts and implement all procedures that it considers necessary to prevent, respond to or alleviate the effects of an emergency or a disaster. This includes the authority to exercise specific powers in a declared state of emergency that are generally only available to the Minister responsible for the *Emergency Program Act*. As noted in Section 1.5, Legislation, the *Emergency Program Act*, a SOLE does not require to be in effect for the local authority to implement emergency plans (Section 8 (1) of the *Emergency Program Act*).

The local authority reviews and assesses the incident as per its appropriate procedures and plans, in coordination with the hazard-specific and technical information provided by Trans Mountain, to aid in the identification and determination of appropriate public safety measures.

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<sup>2</sup> Non-treaty First Nations can put in place Band Council Resolutions (BCRs) with an evacuation order or to conduct a tactical evacuation if required.

### **3.0 HAZARD IDENTIFICATION AND ASSOCIATED RISKS**

The immediate hazards associated with an incident at the Terminal that could result in the implementation of public safety measures within Terminal boundaries, or the surrounding area include heat, vapour, smoke and boil over.

Following an incident, Trans Mountain personnel will conduct an initial assessment, as outlined in Section 4.0, Initial Incident Assessment, to distinguish the applicable hazards.

The details on each of the hazards, described below, will be used to support the initial assessment.

#### **3.1 Hazards**

##### **3.1.1 Heat**

Thermal radiation decreases as the distance from the source increases.

Potential impacts from heat include:

- Injuries
- Burns from thermal radiation (in extreme cases)

In the scenario of a full-surface fire (the credible worst-case scenario for the Terminal), the distance that could be impacted by heat is 192m.<sup>3</sup>

##### **3.1.2 Vapour & Smoke**

Dispersion of vapour and/or smoke is dependent on environmental and atmospheric conditions and may pose risks beyond the boundaries of the Terminal.

Potential impacts from vapour and/or smoke include:

- Injuries resulting from inhalation
- Reduced air quality that may impact community members with pre-existing respiratory conditions such as asthma

Air monitoring of vapour and smoke is an essential component in determining when to implement applicable public safety measures and which measure (evacuation or shelter-in-place) is appropriate. Odours can be strong and may be detected by the nose at levels much lower than the levels that pose negative health effects.

Smoke dispersion is incident specific. Smoke dispersion modelling is dependent on several product-based variables, including the rate of release, estimated cloud size, atmospheric conditions, height of release, and distance from the release. Modelling can also support the local authorities and the health authority in making incident-specific decisions regarding any expansion of initial public safety measures and/or returning people safely home.

The Trans Mountain Public Health Assessment and Response Plan for Airborne Health Risks associated with Pipeline/Terminal Operations and Incidents will be activated in conjunction with the Terminals ERP and this Plan. The Trans Mountain Public Health Assessment and Response Plan for Airborne Health

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<sup>3</sup> Radiant heat impact intensity of 1.0 kW/m<sup>2</sup> was used to identify the Protective Action Zone, which is the equivalent intensity to potentially cause a sunburn on exposed skin dependent on the time of exposure.

Risks associated with Pipeline/Terminal Operations and Incidents provides the initial air monitoring strategy as an interim measure until the incident-specific air monitoring plan is developed.

The initial strategy sets out action levels for pre-identified Potential Chemicals of Concern (PCOCs); when monitoring data indicates that an action level is reached, the Environmental Unit Leader will initiate an assessment of public health risk, as contact with smoke and/or vapour may pose a risk to human health. The Trans Mountain Public Health Assessment and Response Plan for Airborne Health Risks associated with Pipeline/Terminal Operations and Incidents includes *Standards for PCOCs: Sources and Detection Limits*<sup>4</sup> as reference material, which provides action levels to reference when assessing the risk to public health. The Environmental Unit, composed of inter-jurisdictional agencies and the Air Monitoring Technical Specialist(s), will evaluate the air monitoring data, and in consultation with the Medical Health Officer from the health authority, determine whether the air monitoring strategy should be altered and if public safety measures should be adjusted. The assessment and recommendation will be communicated to the Unified Command for implementation by the local authority. A copy of PCOCs is included in Appendix E, *Standards for Potential Chemicals of Concern: Sources and Detection Limits*, for ease of reference. The Acute Exposure Guideline Level 1 (AEG1-1) is the airborne concentration (expressed as ppm or mg/m<sup>3</sup>) of a substance above which it is predicted that the general population, including susceptible individuals, could experience notable discomfort, irritation, or certain asymptomatic non-sensory effects.

### 3.1.3 Boil-over

A boil-over is a potential consequence of a full-surface tank fire and can impact the public outside of Terminal boundaries. When a boil-over occurs, hot and/or burning crude oil is ejected upward and outward from the impacted storage tank and then falls to the ground, potentially in all directions from the impacted storage tank.

Potential impacts from a boil-over include:

- Injuries resulting from contact with hot and/or burning crude oil, e.g., burns.

In the scenario of a full-surface fire (the credible worst-case scenario for the Terminal), the distance that could be impacted is up to 10x the diameter of the tank that is on fire. Therefore, the Protective Action Zone for a full-surface tank fire is 10x the diameter of the largest tank at the Terminal to ensure public safety during extinguishment activities.

The largest potential impacted storage tank at Sumas Terminal is 45.7 meters in diameter, and thus, the boil-over has the potential to reach as far as 457 metres from the impacted storage tank.

### 3.1.4 Other

Dispersion of product, and/or firefighting fluids, beyond the boundaries of the terminal is dependent on environmental and atmospheric conditions. These may pose a risk to human health if there is transdermal contact or ingestion. Public protection measures may include rerouting or minimizing traffic, closure of roads and trails, and limitation of access to parks.

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<sup>4</sup> The *Standards for PCOCs: Sources and Detection Limits* table outlines the published, recognized standards and guidelines for ambient air quality, worker exposure limits, and acute public exposure levels applicable to the measurable PCOCs for a product release or fire.

## 4.0 INITIAL INCIDENT ASSESSMENT

Each incident type coincides with an Initial Isolation Zone and Protective Action Zone. Table 1 and Table 2 will form the basis of the initial assessment to identify the associated zones at risk.

### 4.1 Initial Isolation Zone

Trans Mountain personnel will complete an initial assessment of the incident to identify the hazards and determine the corresponding risk to those within the Initial Isolation Zone.<sup>5</sup> Each incident type corresponds with an Initial Isolation Zone, as seen in Table 1, where access will be restricted to response personnel as there may be an immediate danger to life and health. The size of the Initial Isolation Zone for each incident represents the area where there is potential for significant injury and/or fatality of persons without appropriate personal protective equipment (PPE).<sup>6</sup>

**Table 1: Incident-specific Initial Isolation Zone**

Incident Type	Hazard	Initial Isolation Zone
Spill, no fire	Vapour	50 metres
3D/rim seal fire	Heat	91 metres
Full-surface fire	Heat	91 metres

### 4.2 Protective Action Zone

Trans Mountain personnel will provide the local authority, as well as all other relevant government departments and assisting entities with incident-specific technical information and air monitoring data, through the initial first responders and subsequent incident briefings, and/or through the ICP (e.g. Unified Command, Liaison Office, and/or Environmental Unit).

**Table 2: Incident-specific Protective Action Zone**

Incident Type	Hazard	Protective Action Zone
Spill, no fire	Vapour	300 metres
3D/Rim seal fire	Heat	192 metres
Full-surface fire	Heat	192 metres
	Boil-over	457 metres (10x diameter of largest tank at the Sumas Terminal)

<sup>5</sup> Details on the evacuation procedure of the Terminal are contained within the Sumas Terminal Fire Safety Plan.

<sup>6</sup> Zone sizes are calculated according to Centre for Chemical Process Safety and Major Industrial Accidents Council of Canada hazard distance standards for thermal intensities as it relates to Trans Mountain Terminals.



Initial Isolation Zone maps and Protective Action Zone maps for each tank at the Terminal are provided in Appendix G, *Sumas Terminal Initial Isolation Zones and Protective Action Zones*. Zone sizes are calculated according to the Centre for Chemical Process Safety and Major Industrial Accidents Council of Canada hazard distance standards for thermal intensities as it relates to Trans Mountain Terminals.

The local authority may use its own distances, but they should not be smaller than those calculated by Trans Mountain.

## **5.0 EVACUATION OF INITIAL ISOLATION ZONE**

### **5.1 Evacuation**

Upon identification of an incident, all non-essential personnel at the Terminal will muster at the pre-determined sites highlighted in the Sumas Terminal Fire Safety Plan. Trained responders will confirm and establish physical barriers or other means of demarcation such as flagging or landmarks that are easily identifiable by responders to distinguish the boundaries of the Initial Isolation Zone. This is a high-risk area and only response personnel with appropriate PPE and training are permitted.

### **5.2 Assessment of Initial Isolation Zone**

Response personnel and Unified Command will continually monitor the hazards and the incident boundaries to ensure they are appropriate and will expand and/or contract the Initial Isolation Zone, as needed. Once it has been determined that there are no longer adverse risks to personnel, the assessment and recommendation will be communicated to the Unified Command. Upon confirmation, Trans Mountain will remove the physical barrier of the Initial Isolation Zone.

## **6.0 INITIAL INCIDENT PUBLIC SAFETY TRANSITION**

During the first hour of an incident Trans Mountain will ensure the safety of responders and the public within the Initial Isolation Zone, due to the immediate threat to life and health. The tank tactical workbook contains the procedure for public evacuation. The procedure has been extracted and included as Appendix D, Evacuation Procedure. Trans Mountain personnel will expand the Initial Isolation Zone, as required, based on the continued air monitoring for the presence and levels of PCOCs and/or intense heat.

Upon arrival of the local authority at the entrance or other appropriate meeting location dependant on the incident, Trans Mountain will provide an Initial Briefing as outlined in the Terminals ERP. The Initial Incident Briefing, in addition to incident specific information, also includes information on the evacuation of the Initial Isolation Zone and if any members of the public were evacuated, where they were directed to muster, and any contact information and status/location of any roadway/trail blockages to prevent public entry to the Initial Isolation Zone.

Trans Mountain will recommend public safety measures such as evacuation and shelter-in-place to the local authority upon their arrival. The local authority will determine the appropriate actions to be taken to protect the public and limit the movement of the public in an area of heightened risk and/or responder activity.

## **7.0 EVACUATION OF PROTECTIVE ACTION ZONE**

During the outset of the incident, the local authority makes the decision whether to implement the initial public safety measures for the Protective Action Zone. Trans Mountain will support, as required, the implementation of the public safety measures under the direction of the local authority.

Appendix E: Standards for Potential Chemicals of Concern: Sources and Detection Limits identifies the land usage surrounding the Terminal, as well as pre-identified vulnerable groups within the Protective Action Zone to assist with preliminary assessment of logistical needs and assistance to conduct the evacuation and support evacuees.

The ICP, together with the local authority, will continually monitor the hazards and the incident outside of Terminal boundaries to determine if the situation has evolved, using the technical information and air monitoring data collated by the Environment Unit. This additional assessment will be used to determine if subsequent actions are required, including if the Protective Action Zone requires expansion or contraction. Trans Mountain will support the local authority in these efforts by assisting with the implementation of further public safety measures, as required.

### **7.1 Vulnerable Groups**

Appendix F, Vulnerable Groups within the Protective Action Zone for Sumas Terminal, identifies the community plan area land use designs surrounding the Terminal and any pre-identified vulnerable groups within the Protective Action Zone. Vulnerable groups are considered, in this circumstance, to be schools, daycares, senior centers, and medical centres. This information can aid with preliminary assessment of logistical needs and assistance required to conduct the evacuation and support evacuees. Much of the land use proximal to the Sumas Terminal includes forested area and a sand and gravel quarry. There are no identified vulnerable groups currently within the combined Protective Action Zones for the Terminal.

### **7.2 Ongoing Assessment**

The ICP, together with the local authority, will continually monitor the hazards and the incident outside of Terminal boundaries to determine if the situation has evolved, using the technical information and air monitoring data collated by the Environmental Unit. This additional assessment will be used to determine if subsequent actions are required, including if the Protective Action Zone requires expansion or contraction. Trans Mountain will support the local authority in these efforts by assisting with the implementation of further public safety measures, as required.

### **7.3 Evacuation Routes, Methods, and Destinations**

Trans Mountain has included the anticipated evacuation routes identified in Appendix H, Anticipated Evacuation Routes. If a formal evacuation order of the Protective Action Zone is to be instituted, the local authority determines the most appropriate evacuation routes and methods based on the circumstances of the incident. Trans Mountain will support this decision-making process. Evacuation routes can include applicable roads, walking paths, trails, as well as other local means of egress specific to the Sumas Terminal. Modes of transportation may include walking, driving, bike, transit buses, etc., as identified by the local authority.

The local authority, including the health authority, will continuously assess and monitor public safety measures to determine if subsequent actions are required. Trans Mountain will support the local authority in these efforts by assisting with the implementation of further public safety measures, as required.

## 7.4 Notifications

Trans Mountain is responsible for:

- Dissemination of evacuation notifications due to the immediate threat to life and health within the Initial Isolation Zone (as per Section 4.0, Initial Incident Assessment)
- Dissemination of information on the incident
- Dispatching a Trans Mountain representative to reception centres to liaise between the public and the company
- Collection of relevant information from evacuees

The Information Officer, as a member of the Incident Management Team, is responsible for developing and releasing information about the incident to the media (news, social, print, TV), incident personnel, members of the public, and impacted parties through the implementation of the external Communications Plan.

The external Communications Plan's objectives are to:

- Provide information about the incident and the related response effort to all stakeholders in a timely, accurate, and responsible fashion.
- Ensure that information about the incident is clear, factual, and consistent with that provided by other responders and government agencies.
- Minimize unnecessary speculation, rumour, or concerns about the incident and potential risks to the public.
- Protect the company's reputation as a responsible corporate citizen.

The Information Officer is supported by a team of pre-assigned employees to assist in implementing the Communications Plan. This group is known as the External Communications Team.

It is recommended that a Joint Information Centre (JIC) under Unified Command be established between Trans Mountain and the local authority. The Trans Mountain Crisis Management Plan can guide the activities of the JIC. A template for the initial media holding statement for the incident is available in Appendix C, Initial Media Holding Statement (Template).

The local authority has the primary responsibility for the development and dissemination of notifications to the community. The JIC can prepare and/or support these activities; or if not established, Trans Mountain, as requested. Communications could include but is not limited to:

- Public notification and situation updates
- Official communications to key audiences
- Media relations

### 7.4.1 Notification Platforms

Various notification platforms may be used to send emergency information to affected persons and communities. These could include but are not limited to:

- Personal verbalization, e.g., loud hailer, door-to-door delivery of notifications
- Social media
- Radio and television announcements
- Trans Mountain's Incident Specific website
- Local authority website

## APPENDIX A GLOSSARY AND ACRONYMS

Word or Phrase	Definition
Boil-over	An escalation event because of a full-surface tank fire. A boil-over is the sudden ejection of a crude oil tank's contents that occurs when residue from surface burning becomes denser than the unburned oil. The residue forms a "hot layer" that moves down in the tank and as the fire progresses, this layer reaches the water, or water-in-oil emulsion, at the bottom of the tank. The water or water-in-oil emulsion becomes superheated, boils, and rapidly expands causing the sudden ejection of the tank contents.
Evacuation (of area)	Due to an impending or actual risk to public safety, individuals are ordered to vacate (evacuate) a defined area based on the hazards present and the threat to immediate life.
Evacuation Notifications	<p><b>Evacuation (of area) Alert</b></p> <p>A notification that informs all or part of a community of a potential or impending danger. It also provides community members and businesses time to undertake preparatory activities prior to an evacuation (of area) order being issued.</p> <p>Evacuation (of area) alerts:</p> <ul style="list-style-type: none"> <li>• Do not require a declaration of a state of local emergency</li> <li>• May be surpassed by the issuance of an evacuation (of area) order</li> </ul> <p><b>Evacuation (of area) Order</b></p> <p>A notification to all or part of a community of an impending danger that requires individuals to evacuate from the area.</p> <p>Evacuation (of area) orders:</p> <ul style="list-style-type: none"> <li>• Are issued through a formal process and recorded in writing</li> <li>• Require a declaration of a state of local emergency to be in place for the order to be valid</li> <li>• Can only be issued for area(s) of the community identified in the declaration of a state of local emergency</li> <li>• Do not allow for any discretionary action on the part of the population at risk</li> <li>• Should be stated that the identified area(s) will be under controlled access until further notice</li> </ul> <p><b>Evacuation (of area) Rescindment</b></p> <p>When the emergency that necessitated the evacuation (of area) alert or order is under control and the primary and secondary emergency zones are declared safe, an evacuation rescindment can be issued.</p>
Full-surface Fire	A fire that engulfs the entire upper surface of a tank after the tank roof has sunk. Vapour from exposed product is ignited by lightning or spark.
Heat	A thermal radiation from the ignition of a flammable substance that could be caused by surface tank fires, 3D pool fires, flash fires, vapour cloud explosions.

Word or Phrase	Definition
Initial Isolation Zone	The geographical area near a continuous hazardous release where all non-response personnel should be evacuated as there may be an immediate danger to life and health for those not protected by appropriate PPE as the result of the incident.
Potential Chemicals of Concern (PCOC)	A pre-determined list of chemicals that may be released into the atmosphere during a product release or fire.
Protective Action Zone	The geographical area associated with a credible worst-case incident that is used to educate community members on the public safety measures, including evacuation or shelter-in-place, that may be required during an incident due to the potential for an imminent threat to health. This area will be adjusted during an incident to account for the actual incident type and the safety measures required to mitigate potential impacts to the public. May be referred to by other entities as the Emergency Planning Zone (EPZ).
Shelter-in-place	Due to an impending or actual risk to public safety, individuals are to take refuge (shelter), to remain indoors, or, if outside, to go indoors immediately.
Shelter-in-place Notifications	<p><b>Shelter-in-place Advisement</b></p> <p>A notification to all or part of a community of an impending danger that requires individuals to take refuge (shelter).</p> <p>Shelter-in-place orders:</p> <ul style="list-style-type: none"> <li>• Are issued through a formal process and recorded in writing</li> <li>• Require a declaration of a state of local emergency to be in place for the order to be valid</li> <li>• Can only be issued for area(s) of the community identified in the declaration of a state of local emergency</li> <li>• Should be stated that the identified area(s) will be under controlled access until further notice</li> </ul> <p><b>Cancellation of Shelter-in-place Advisory</b></p> <p>When the emergency that necessitated the shelter-in-place advisory has evolved and/or is under control, such that it has been determined that it is safe to be outdoors, the advisory can be cancelled; cancellation may occur in stages.</p>
Three-dimensional (3D) Fire	A three-dimensional fire is a liquid-fuel fire in which the fuel is being discharged from an elevated or pressurized source, creating a pool of fuel on a lower surface.
Smoke	The mixture of gases and suspended carbon particles that is likely visible and results from the ignition of a flammable substance.
Vapour	A substance diffused or suspended in the air that is normally a liquid or solid. Once diffused or suspended, it may be invisible. It is not the result of the ignition of a flammable substance.
Vulnerable Groups	Pre-identified vulnerable groups when considering evacuation under these circumstances include schools, daycares, senior centers, and medical centres.

## Acronyms

<b>Abbreviation</b>	<b>Full Description</b>
CER	Canada Energy Regulator
EOC	Emergency Operations Centre
EMRC	Emergency Management and Climate Readiness
ERP	Emergency Response Plan
ESS	Emergency Support Services
EU	Environmental Unit
IAP	Incident Action Plan
ICP	Incident Command Post
ICS	Incident Command System
JIC	Joint Information Centre
PCOC	Potential Chemicals of Concern
PPE	Personal protective equipment
PREOC	Provincial Regional Emergency Operations Centre
SOLE	State of Local Emergency
UC	Unified Command
3D Fire	Three-dimensional Fire



## APPENDIX B ROLES AND RESPONSIBILITIES FOR RESPONDING AGENCIES AND ASSISTING ENTITIES

A responding agency is an organization that either has the legislative authority and responsibility to implement evacuation/shelter-in-place orders or has a regulatory responsibility to be a member of Unified Command.

**Table 3: Responding Agencies**

Responding Agencies		
Entity	Role	Authority
Trans Mountain	<p>Trans Mountain is responsible for taking immediate action to identify the hazards present following an incident and will establish and evacuate members of the public within the Initial Isolation Zone.</p> <p>Trans Mountain provides technical advice to the local authority to aid in the determination of appropriate public safety measures.</p> <p>Trans Mountain supports the local authority with evacuation (of area) or shelter-in-place and the communication of information to impacted community members.</p>	<p>Trans Mountain has no legislative authority to evacuate the public, except in circumstances where there is an immediate threat to life and health.</p> <p>A member of Unified Command.</p>
Local authority: City of Abbotsford	<p>The City of Abbotsford (the local authority) is responsible for protecting life and property within their jurisdiction. The local authority implements its emergency plan, which includes activation of its evacuation (of area) or shelter-in-place procedures.</p> <p>In coordination with the Trans Mountain ICP, the local authority's Emergency Operation Centre (EOC) and supporting entities issues evacuation (of area) and shelter-in-place advisories and cancellations.</p> <p>The local authority may declare a local state of emergency, if required.</p>	<p>Has the authority to declare a state of local emergency and order evacuations and/or shelter-in-place.</p> <p>A member of Unified Command.</p>
Local authority: Abbotsford Fire Rescue Service	<p>Abbotsford Fire Rescue Service is responsible for declaring a tactical evacuation (of area) or shelter-in-place actions for immediate life safety.</p> <p>Abbotsford Fire Rescue Service:</p> <ul style="list-style-type: none"> <li>Communicates evacuation (of area) or shelter-in-place alerts and orders to threatened or impacted community members and businesses.</li> <li>May represent the City in Unified Command.</li> </ul>	<p>Has authority to evacuate in situations of immediate life safety.</p>

<b>Responding Agencies</b>		
<b>Entity</b>	<b>Role</b>	<b>Authority</b>
Ministry of Environment and Climate Change Strategy (BC MoE) (Provincial representative)	The province coordinates available resources to provide emergency response assistance that supplements but does not substitute community resources.	No legislative authority to evacuate unless a provincial State of Emergency is declared.  A member of Unified Command.
Canada Energy Regulator (CER)	The CER's top priority in any emergency is to make sure that people are safe and secure, and that the environment and property are protected. The CER oversees the company's response, including ensuring emergency plans are in place and executed, and will require that all reasonable actions are taken to protect employees, the public, and the environment.	No legislative authority to evacuate.  A member of Unified Command.
Local authority: Sumas First Nation, Chief	Sumas First Nation (local authority) is responsible for protecting life and property within its jurisdiction. It implements its emergency plan, which includes activation of its evacuation (of area) or shelter-in-place plan.	Has the ability to declare a state of local emergency and order evacuations and/or shelter-in-place.  A member of Unified Command.

An assisting entity is an organization that has the authority, a role, and/or responsibility to support the implementation of an evacuation/shelter-in-place decision.

**Table 4: Assisting Entities**

<b>Assisting Entities</b>		
<b>Entity</b>	<b>Role</b>	<b>Authority</b>
Abbotsford Police Department	<p>The Abbotsford Police Department supports the tactical response and implementation of evacuation (of area) and shelter-in-place orders within the City limits of Abbotsford.</p> <p>Abbotsford Police can also:</p> <ul style="list-style-type: none"> <li>• Lead the implementation of the evacuation plan.</li> <li>• Represent the City in Unified Command.</li> </ul>	<p>Has authority to evacuate in situations of immediate life safety or are of a security nature, as per the Emergency Program Act.</p>
Abbotsford School District (School District 34)	<p>The school district works with local authorities to ensure students are protected.</p> <p>Abbotsford School District:</p> <ul style="list-style-type: none"> <li>• Implements evacuation (of area) and shelter-in-place plans as directed.</li> <li>• Participates in the impacted local authority EOC and/or Trans Mountain ICP.</li> </ul>	<p>Primary function in an emergency is to keep students safe.</p> <p>An assisting entity.</p>
Neighbouring local authorities	<p>Neighbouring local authorities monitor and assess potential risk to their jurisdiction and may provide mutual assistance to the affected community.</p>	<p>No legislative authority to evacuate outside of their jurisdiction.</p> <p>An assisting entity to impacted local authority.</p>
City of Abbotsford – Emergency Support Services (ESS)	<p>The ESS leads the setup and staffing of the evacuee Reception Centre.</p> <p>This program is intended to provide support services that preserve the emotional and physical well-being of evacuees and response workers in emergency situations.</p> <p>Assistance can include provision of food, lodging, clothing, emotional support, and family reunification services.</p>	<p>No legislative authority to evacuate.</p> <p>An assisting entity.</p>
City of Abbotsford – Public Works	<p>The Public Works Department supports Abbotsford Fire Rescue Service with emergency response activities as requested, such as assisting with the implementation of a public safety order, traffic management, etc.</p>	<p>No legislative authority to evacuate.</p> <p>A supporting agency.</p>
<b>Provincial Entities</b>		

<p>Emergency Management and Climate Readiness (EMCR)</p>	<p>Provides and coordinates provincial support for local authorities and First Nations within designated regional boundaries. Support and coordination at this level are provided by a Provincial Regional Emergency Operations Centre (PREOC).</p> <p>EMCR:</p> <ul style="list-style-type: none"> <li>• Authorizes a local authority to implement a local emergency plan or emergency measures for all or any part of the jurisdictional area for which the local authority has responsibility.</li> <li>• Requires a local authority for a municipality or an electoral area to implement a local emergency plan or emergency measures for all or any part of the municipality or electoral area for which the local authority has responsibility.</li> <li>• Causes the evacuation of persons and the removal of livestock, animals, and personal property from any area of British Columbia that is or may be affected by an emergency or a disaster and arrange for the adequate care and protection of those persons, livestock, animals, and personal property.</li> </ul> <p>Invited to participate in the Trans Mountain ICP.</p>	<p>EMCR has the legislated authority, if and when the criteria outlined in Section 9 of the EPA are met, to declare a State of Emergency</p> <p>An assisting entity.</p>
<p>First Nations Health Authority (FNHA)</p>	<p>The FNHA has subject matter experts who can participate and support the identification of possible impacts to health from the incident.</p> <p>FNHA:</p> <ul style="list-style-type: none"> <li>• Provides guidance regarding health impacts and air quality to support Sumas First Nation decisions in issuing alerts, orders, and rescindments for both evacuation (of area) and shelter-in-place advisories.</li> </ul> <p>Invited to participate in the Trans Mountain ICP.</p>	<p>No legislative authority to evacuate.</p> <p>An assisting entity.</p>
<p>Fraser Health Authority</p>	<p>Fraser Health Authority will provide subject matter experts to identify possible impacts to health from the incident.</p> <p>Fraser Health Authority:</p> <ul style="list-style-type: none"> <li>• Provides guidance regarding health impacts and air quality to support the local authority decisions in issuing alerts, orders, and rescindments for both evacuation (of area) and shelter-in-place.</li> </ul>	<p>Has legislated authority to mitigate or prevent further harm of the public from a health hazard, if and when the criteria outline in the <i>Public Health Act</i> is met.</p>

	Invited to participate in the Trans Mountain ICP.	An assisting entity.
Health Emergency Management British Columbia (HEMBC)	<p>HEMBC will provide leadership and support to the health authorities.</p> <p>HEMBC:</p> <ul style="list-style-type: none"> <li>• Coordinates between health authorities' communications personnel and the ICP Public Information Officer on public messaging and media releases related to public health.</li> <li>• Supports evacuees through the provision of health services and care to existing patients and clients and psychosocial supports through the Disaster Psychosocial Services (DPS) program.</li> <li>• Supports the re-establishment of key health services prior to the lifting of an Evacuation Order.</li> </ul> <p>Invited to participate in the Trans Mountain ICP.</p>	<p>No legislative authority to evacuate.</p> <p>An assisting entity.</p>

## APPENDIX C INITIAL MEDIA HOLDING STATEMENT (TEMPLATE)

The following statement can be issued upon receipt of information that a possible incident has occurred:

### MEDIA STATEMENT

*(Enter date) – Trans Mountain is investigating a (possible/confirmed) (enter brief description of incident) at the Sumas Terminal. (Enter any initial measures) are being taken to ensure the safety of those in and around the Sumas Terminal in Abbotsford.*

*More information will be provided as it becomes available. For the latest information and updates visit [www.transmountain.com](http://www.transmountain.com).*

#### Media Contacts

(Enter name)

(Enter title)

(Enter phone number)

(Enter email address)

###

#### To provide updates via Twitter

- Use the name of the incident or location to create a unique hashtag and use it consistently throughout response
- Link to the incident response site wherever possible
- Use approved key messages and post regular updates as more information about the incident becomes available
- Respond to legitimate questions about the incident received via Twitter within 2 hours

#### Possible Tweet Content

Trans Mountain is investigating a possible incident at Sumas Terminal. Information will be provided as it becomes available. Check [www.transmountain.com](http://www.transmountain.com). #Abbotsford

UPDATE: #TransMountain crews are responding at the Sumas Terminal in #Abbotsford. More information about ongoing response efforts can be found here: LINK

## APPENDIX D EVACUATION PROCEDURE<sup>7</sup>

### ***Initial Public Safety Assessment and Actions***

Response personnel will continually monitor the hazards and the incident boundaries to ensure they are appropriate and will expand and/or contract the Initial Isolation Zone, as needed.

- Don appropriate PPE; this includes:
  - Flame retardant outerwear
  - CSA/ANSI approved hard hat
  - CSA-approved footwear
  - Protective eyewear
  - In the case of a fire, fire fighting turnout gear and/or SCBA may also be required.
- Utilize handheld air monitors for initial and continuous monitoring until contracted services arrive to confirm the Initial Isolation Zone and need for the expansion of the zone.
- Gather the following equipment to establish radius of gas readings:
  - Portable gas detector (Ventis MX4 gas monitor)
  - Communication device (radio)
  - UltraRAE compound specific PID monitor
- Perform air sampling for H<sub>2</sub>S, LEL, O<sub>2</sub>, and CO along the perimeter of the Initial Isolation Zone using the Ventis MX4 personal gas monitor.
- Assign a supplemental rover to conduct at least one 15-minute air sampling event using a Jerome H<sub>2</sub>S Analyzer and UltraRAE monitor; One air sampling event consists of four (4) separate air sampling readings taken at five-minute intervals.
- Calculate the average of the four readings for the appropriate instrument and parameter.
- Maintain a record of the air monitoring results using Section B of the Odour Complaint Investigation Form.
  - If abnormal levels are identified, notify the IC.
- Note wind direction and wind speed.
  - A shift in wind direction requires immediate re-evaluation.
- Notify the IC immediately if the numerical average for the second air sampling event meets or exceeds 0.005 ppm for H<sub>2</sub>S, and/or 10 ppm for VOC.
- Conduct a second air sampling event.
- Maintain awareness of levels in context of responder safety, including rovers and those staffing roadblocks.

### **If abnormal levels are identified:**

- Expand the Initial Isolation Zone if required.
- Deploy personnel downwind and upwind depending on how the plume is tracking.
- Communicate the need for public protective measures (evacuation) to IC or Control Centre.
- Request communication of public protective measures to emergency services.

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<sup>7</sup> Extracted from the Sumas Terminal Fire Pre-Plan Tactical Workbook, a confidential document.

- Identify parties within the Initial Isolation Zone.
- Identify roadblock leader.
- Identify additional rovers.
- Identify exit route and muster points using map (in tactical workbook or evacuation plan).

### Rovers

- Deploy personnel downwind and upwind depending on how the plume is tracking.
- Monitor gas migration; verify boundary of the safety perimeter.
- Advise impacted public to evacuate.
- Begin notification of public with those in closest proximity to the incident location and downwind of the location.
- Record name and address if evacuation is refused; notify the Control Centre to notify RCMP.
- If contact cannot be made through a personal visit, request resources to conduct a thorough survey of the area.

### Road and trail blocks

- Establish access control (roadblocks) to the Initial Isolation Zone.
- Establish roadblocks to limit access; Consider access/egress of responders and evacuees.
- Position vehicle in a highly visible area to oncoming traffic.
- Use intersecting crossroads as much as possible to maximize the monitoring of traffic flow.
- Do not completely block road.
- Engage the four-way flashers on vehicle.
- Wear traffic vest to maintain visibility to traffic.
- Erect physical barriers at pathways leading to evacuated areas (or implement other means of demarcation such as flagging).
- Record names, addresses, and contact information of evacuees leaving the area; ask those leaving the area to register at the identified muster site.
- Post security personnel to prevent members of the public from entering the area.
- Request additional resources to aid in manning sites.
- Request assistance, as needed, from local law enforcement on a temporary basis until additional resources arrive.

Re-evaluate regularly, or upon a change in the circumstances, to expand or contract the zone in consultation with emergency services.

Upon arrival of the local authority at the fence, Trans Mountain will provide an Initial Briefing as outlined in the Terminals ERP which in addition to incident specific information, also includes the evacuation of the Initial Isolation Zone and if any members of the public were evacuated, where they are located, and contact information. The status/location of any roadway/trail blockages to prevent entry to the Initial Isolation Zone.

Trans Mountain recommends evacuation of the Protective Action Zone to the local authority upon their arrival. Shelter-in-place may be used if the local authority determines the incident is either under control or expected to be under control in the immediate future and may choose to isolate the area to prevent additional members of the public from entering the area.



**APPENDIX E STANDARDS FOR POTENTIAL CHEMICALS OF CONCERN: SOURCES AND DETECTION LIMITS<sup>8</sup>**

PCOC		unit		Guideline Criteria													
				AB AAQO <sup>1</sup>			BC AAQO <sup>2</sup>			Metro Vancouver AAQO <sup>3</sup>			AB OHS OEL <sup>4</sup> 8-hr	AB OHS CL <sup>4</sup>	BC OHS STEL <sup>5</sup>	BC OHS TWA <sup>5</sup> 8-hr	AEGL-1 <sup>6</sup>
		1-hr	8-hr	24-hr	1-hr	8-hr	24-hr	1-hr	8-hr	24-hr					1-hr	8-hr	
H <sub>2</sub> S	ppb	10	-	3	5	-	2	5 (desirable) 10 (acceptable)	-	-	10,000	15,000	10,000	-	510	330	100
	ppm	0.01	-	0.003	0.005	-	0.002	0.005 (desirable) 0.01 (acceptable)	-	-	10	15	10	-	0.51	0.33	0.1
C <sub>6</sub> H <sub>6</sub>	ppb	9	-	-	-	-	-	-	-	-	500	2,500	2,500	500	52,000	9,000	50
	ppm	0.009	-	-	-	-	-	-	-	-	0.5	2.5	2.5	0.5	52	9	0.05
SO <sub>2</sub>	ppb	172	-	48	75	-	-	70	-	-	2,000	5,000	5,000	2,000	200	200	100
	ppm	0.172	-	0.048	0.075	-	-	0.07	-	-	2	5	5	2	0.2	0.2	0.1
CO	ppb	13,000	5,000	-	13,000	5,000	-	13,000	5,000	-	25,000	-	100,000	25,000	83,000	27,000	1,000
	ppm	13	5	-	13	5	-	13	5	-	25	-	100	25	83	27	1
NO <sub>2</sub>	ppb	159	-	-	60	-	-	60	-	-	3,000	5,000	1,000	-	500	500	100
	ppm	0.159	-	-	0.06	-	-	0.06	-	-	3	5	1	-	0.50	0.50	0.1
TPM*	ug/m <sup>3</sup>	-	-	100	-	-	120	-	-	-	10	-	-	10	-	-	0.001
PM <sub>10</sub>	ug/m <sup>3</sup>	-	-	-	-	-	50	-	-	50	3	-	-	3	-	-	0.001
PM <sub>2.5</sub>	ug/m <sup>3</sup>	80	-	29	-	-	25	-	-	25	-	-	-	-	-	-	0.001

1 Alberta Ambient Air Quality Objectives

2 British Columbia Ambient Air Quality Objectives

3 Metro Vancouver Ambient Air Quality Objectives

4 Alberta Occupational Health and Safety Occupational Exposure Limit

5 OHS Guidelines Part 5: Chemical Agents and Biological Agents

6 US Environmental Protection Agency Acute Exposure Guideline Level

\* Particulates Not Otherwise Regulated (Total Dust)

\*\*PCOC can be detected by fixed and mobile monitoring equipment

 C<sub>6</sub>H<sub>6</sub> = Benzene

CO = Carbon Monoxide

 H<sub>2</sub>S = Hydrogen Sulfide

 NO<sub>2</sub> = Nitrogen Dioxide

PCOC = Potential Chemical of Concern

 PM<sub>10</sub> = Particulate matter 10 micrometers

 PM<sub>2.5</sub> = Particulate matter 2.5 micrometers

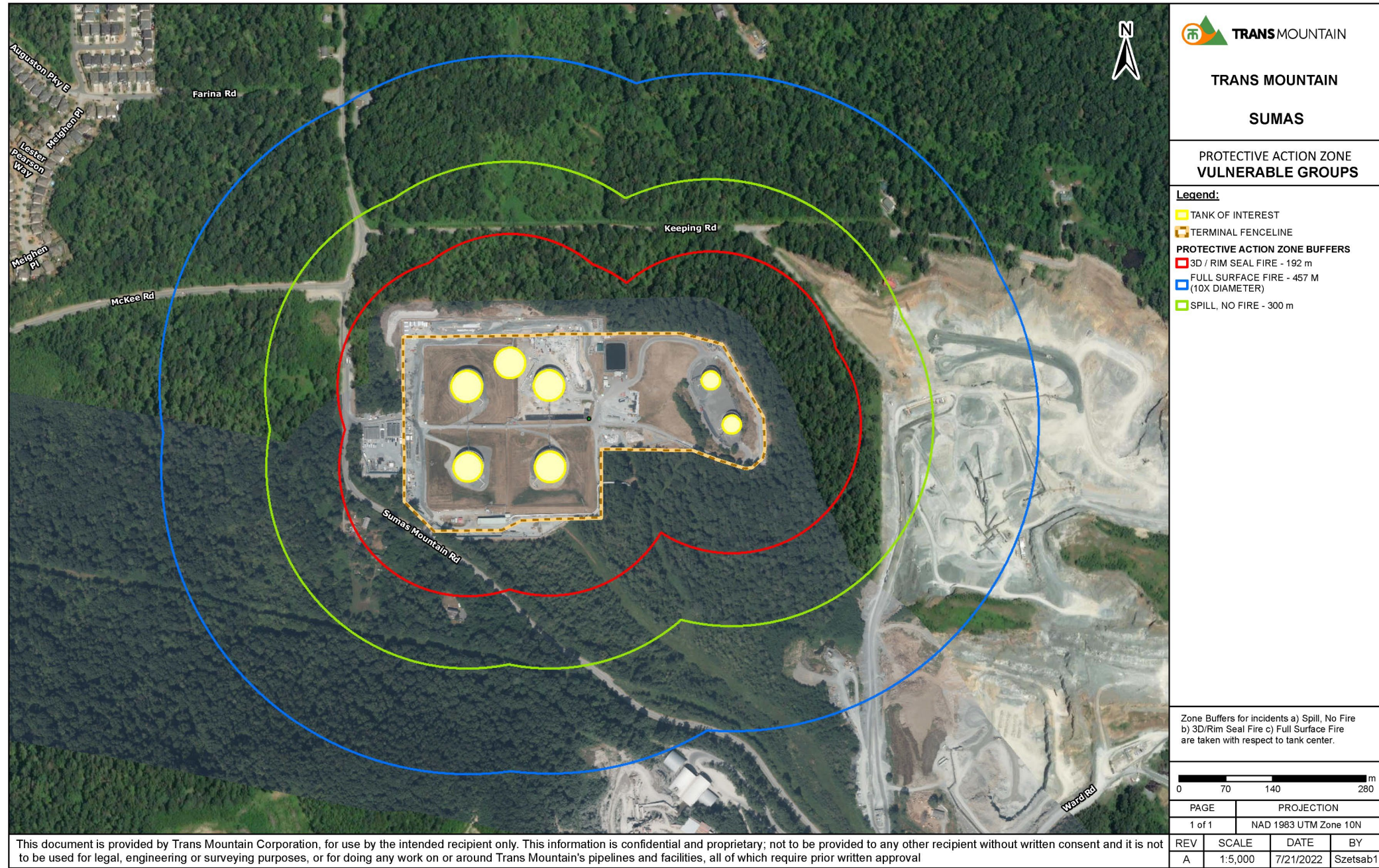
 SO<sub>2</sub> = Sulfur Dioxide

TPM = Total particulate matter

<sup>8</sup> From Appendix II of the Trans Mountain Public Health Assessment & Response Plan for Airborne Risk.

**APPENDIX F VULNERABLE GROUPS WITHIN THE PROTECTIVE ACTION ZONE FOR SUMAS TERMINAL<sup>9</sup>**

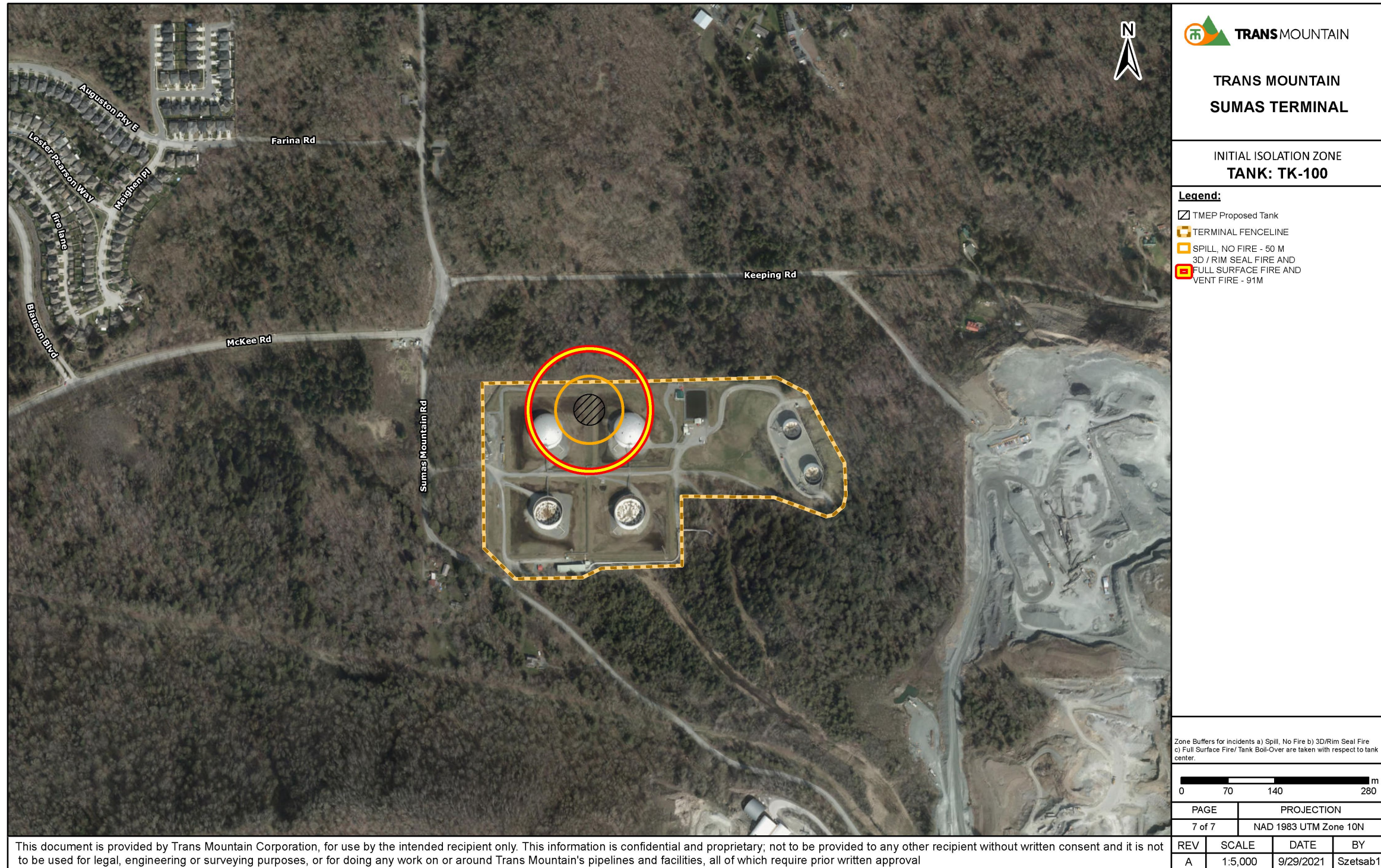
At this time, no vulnerable groups have been identified within the Protective Action Zone for Sumas Terminal.



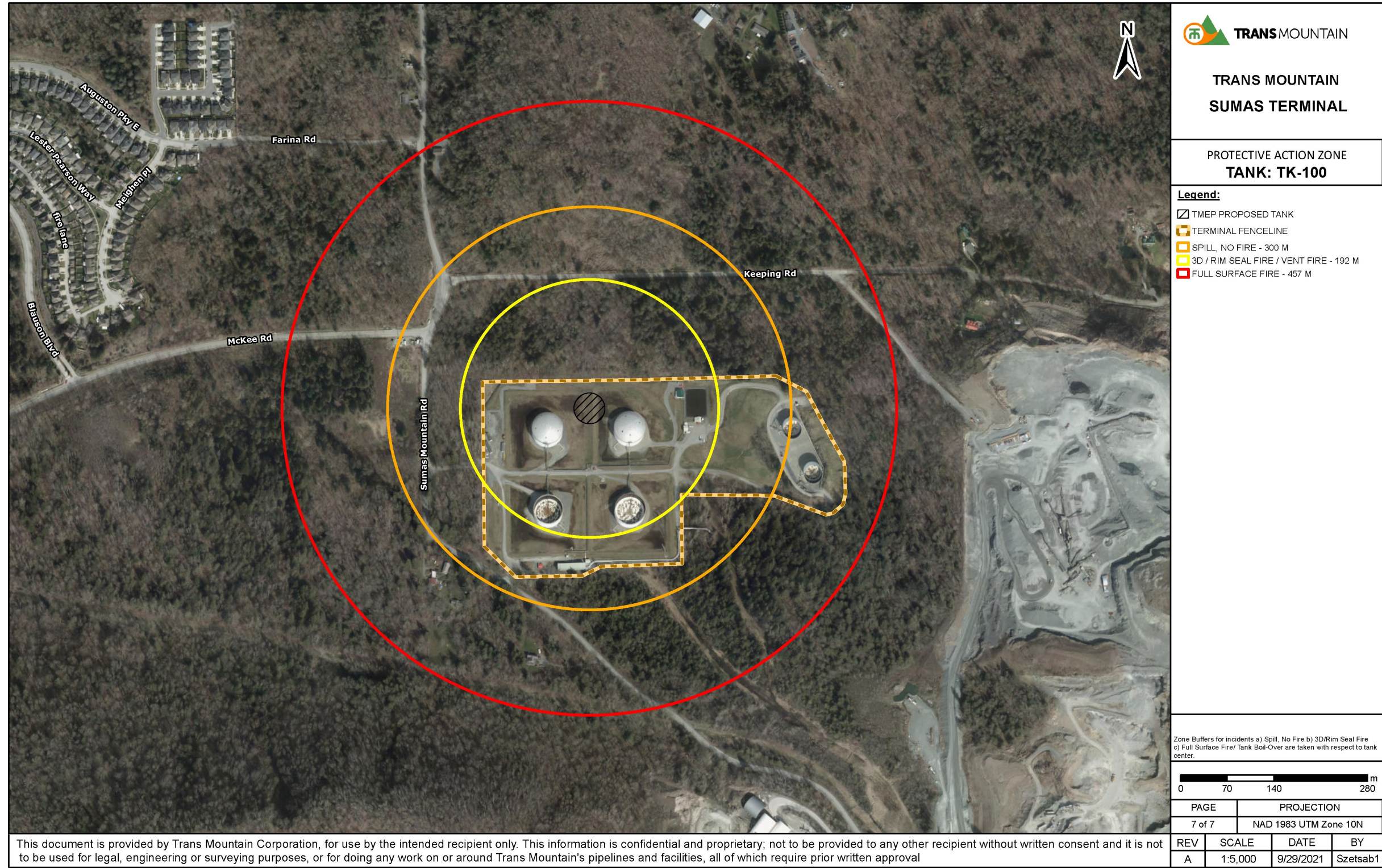
<sup>9</sup> Vulnerable Land Use Mapping is an analysis of the site of interest for locations of vulnerable group populations. Protective Action Zone Buffers are created by buffering the Facility Tanks different distances according to the potential incident case. An intersection is performed of vulnerable groups (including hospitals, schools, childcare and senior care sites) that fall within the Protective Action Zone Buffers. If a site is identified within the Buffer, it is then represented on the mapping.

**APPENDIX G SUMAS TERMINAL INITIAL ISOLATION ZONES AND PROTECTIVE ACTION ZONES**

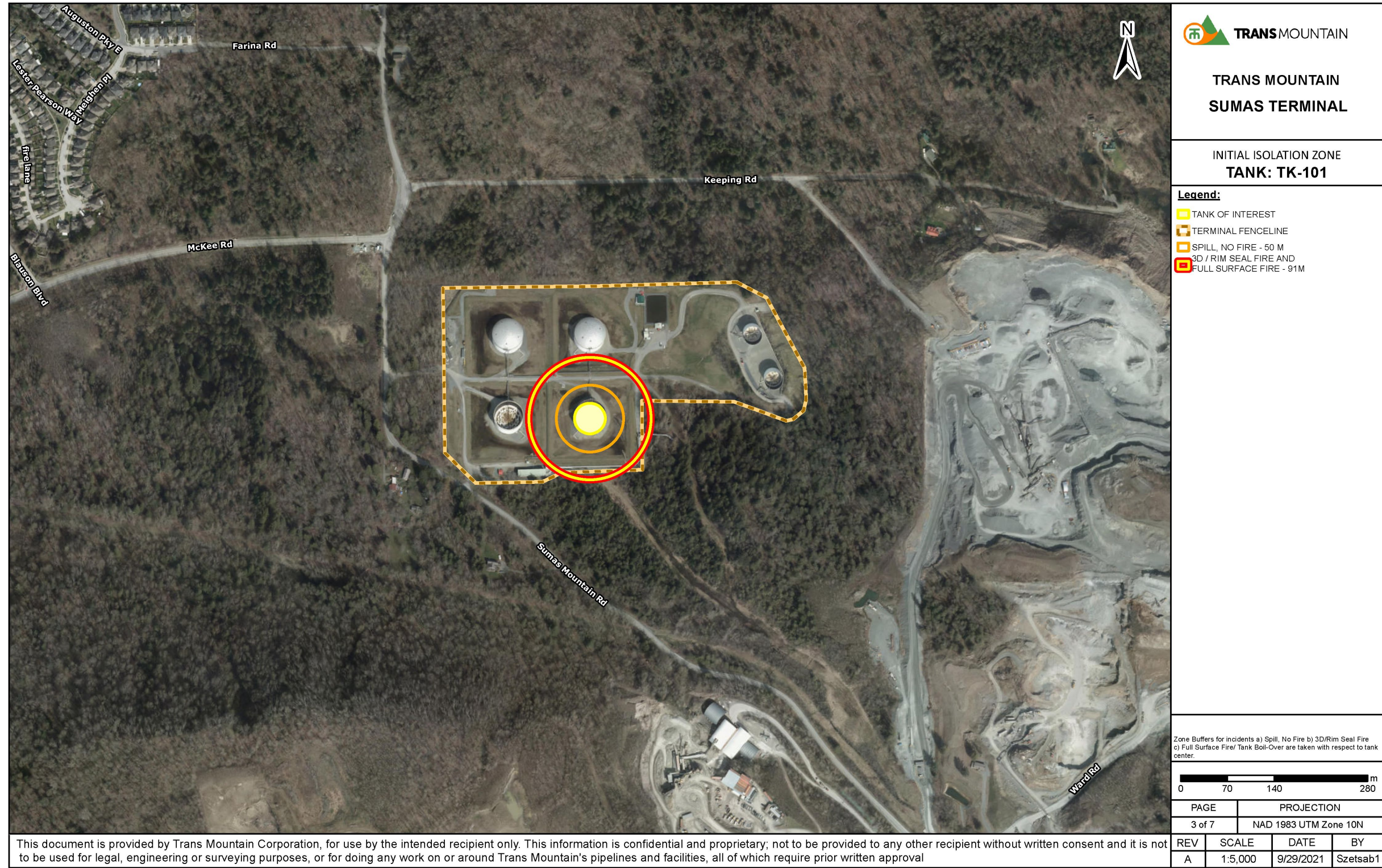
**Initial Isolation Zone – Tank 100**



**Protective Action Zone – Tank 100**

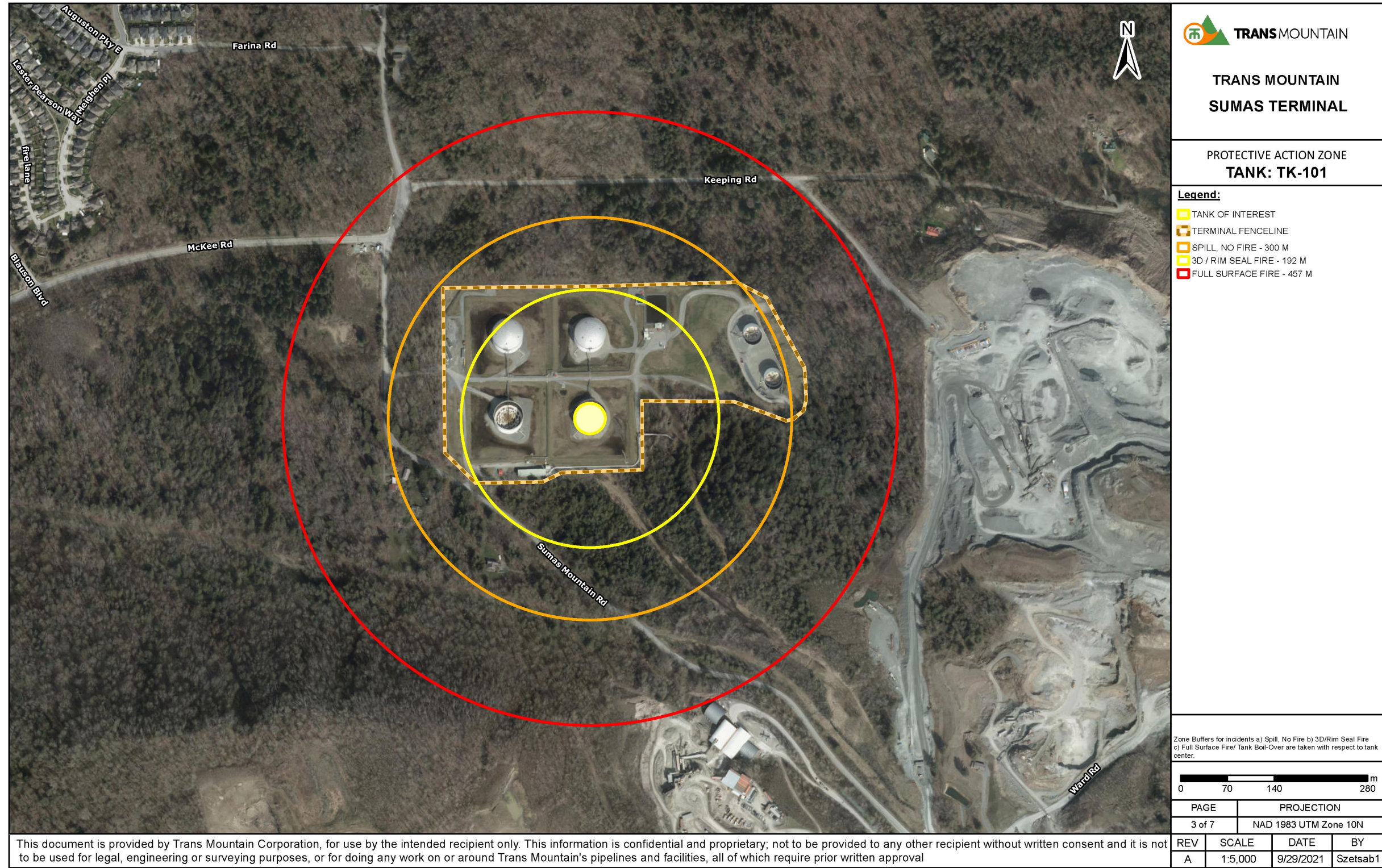


**Initial Isolation Zone – Tank 101**



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**Protective Action Zone – Tank 101**



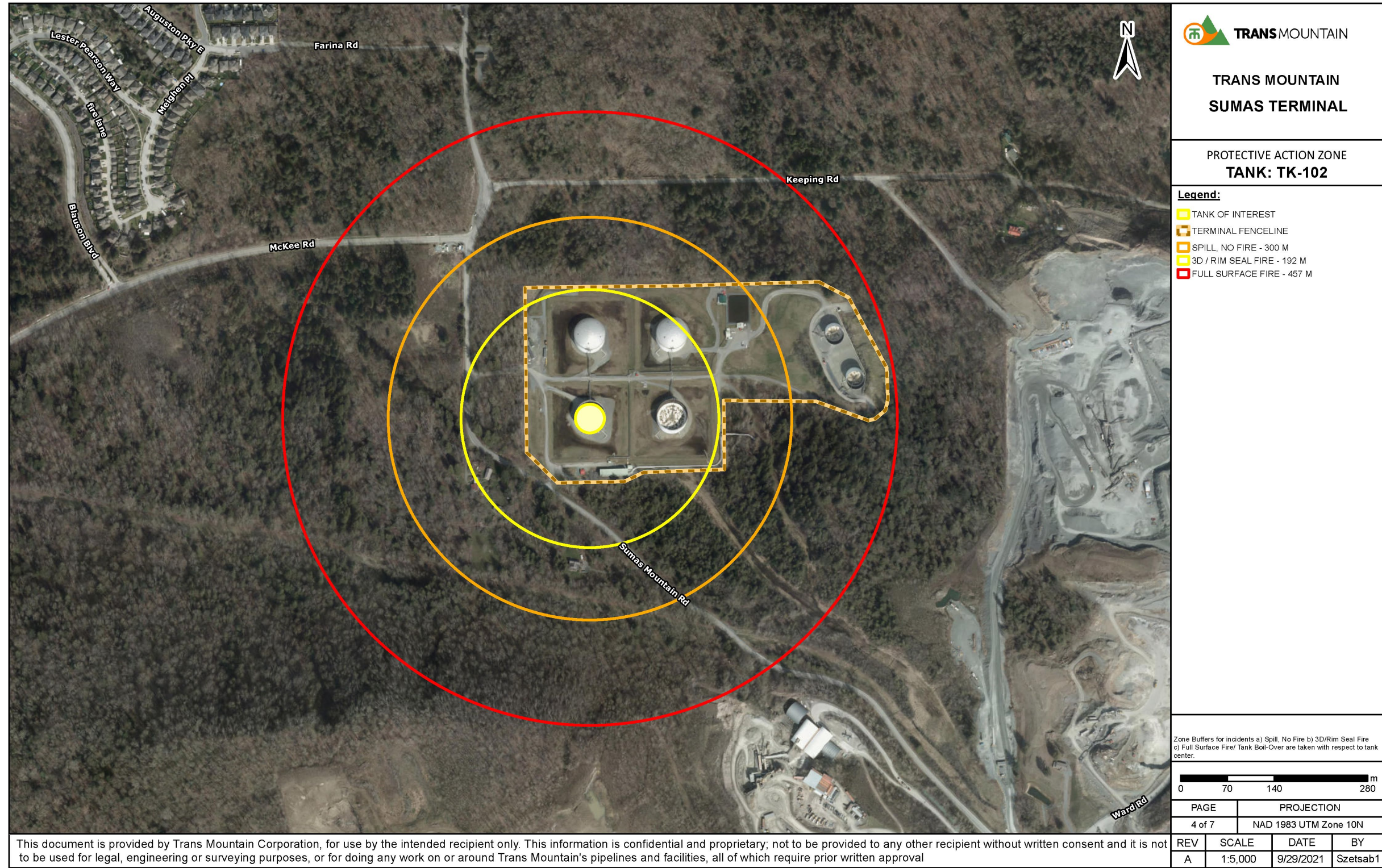
**Initial Isolation Zone – Tank 102**



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Sumas\_InitialIsolationZones\_20210929.mxd

**Protective Action Zone – Tank 102**

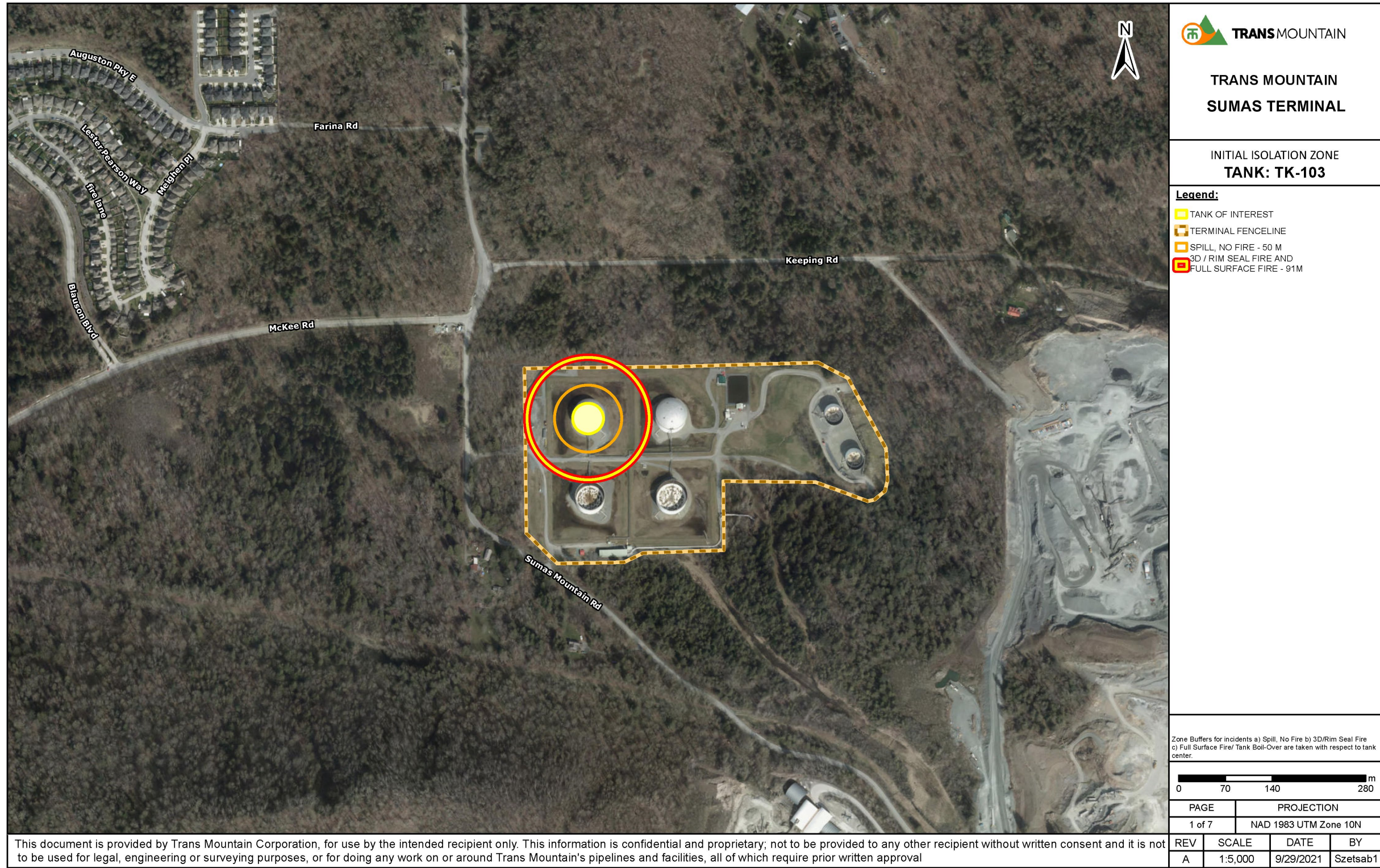


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Sumas\_ProtectiveActionZones\_20210929.mxd

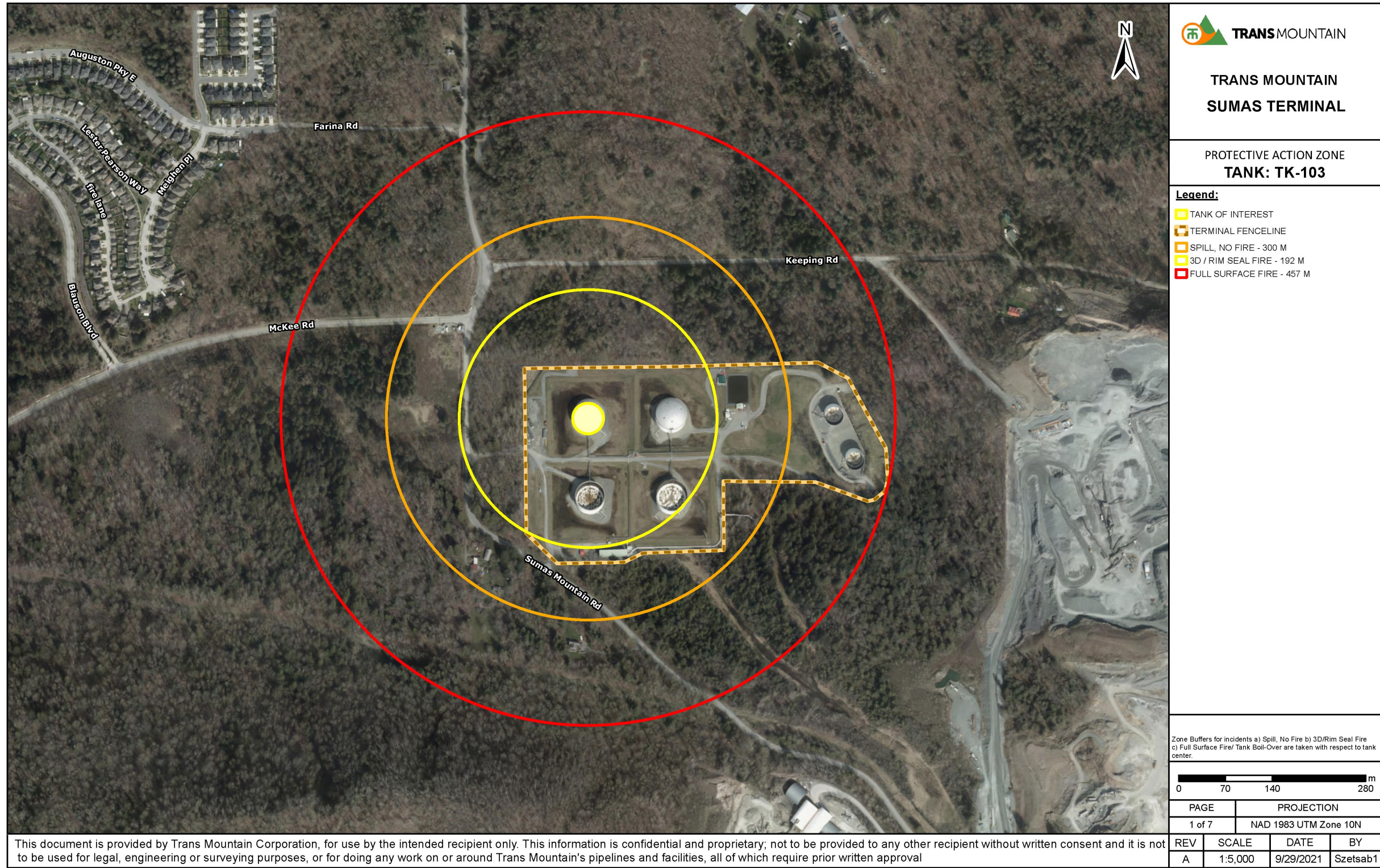


**Initial Isolation Zone – Tank 103**



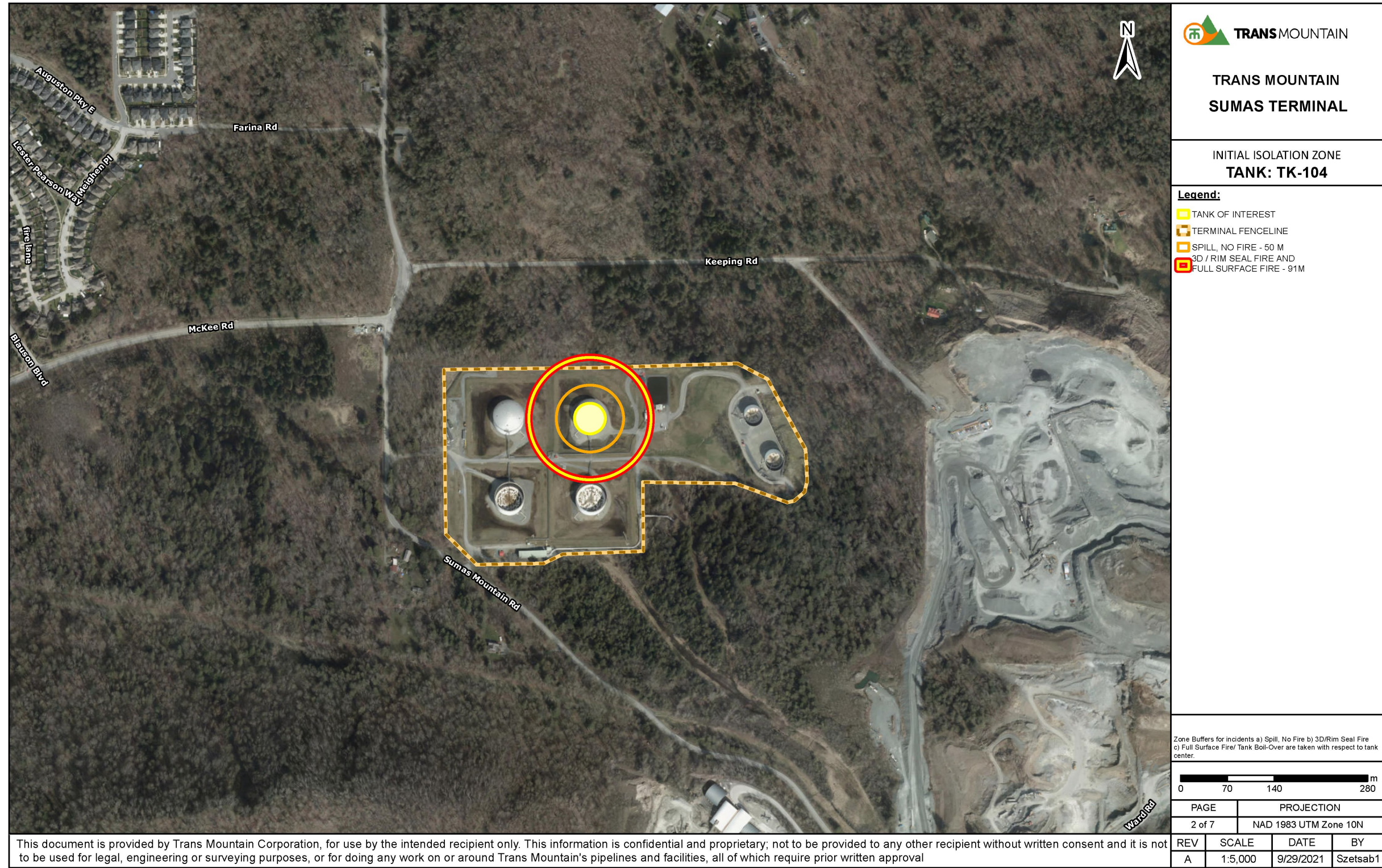
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**Protective Action Zone – Tank 103**



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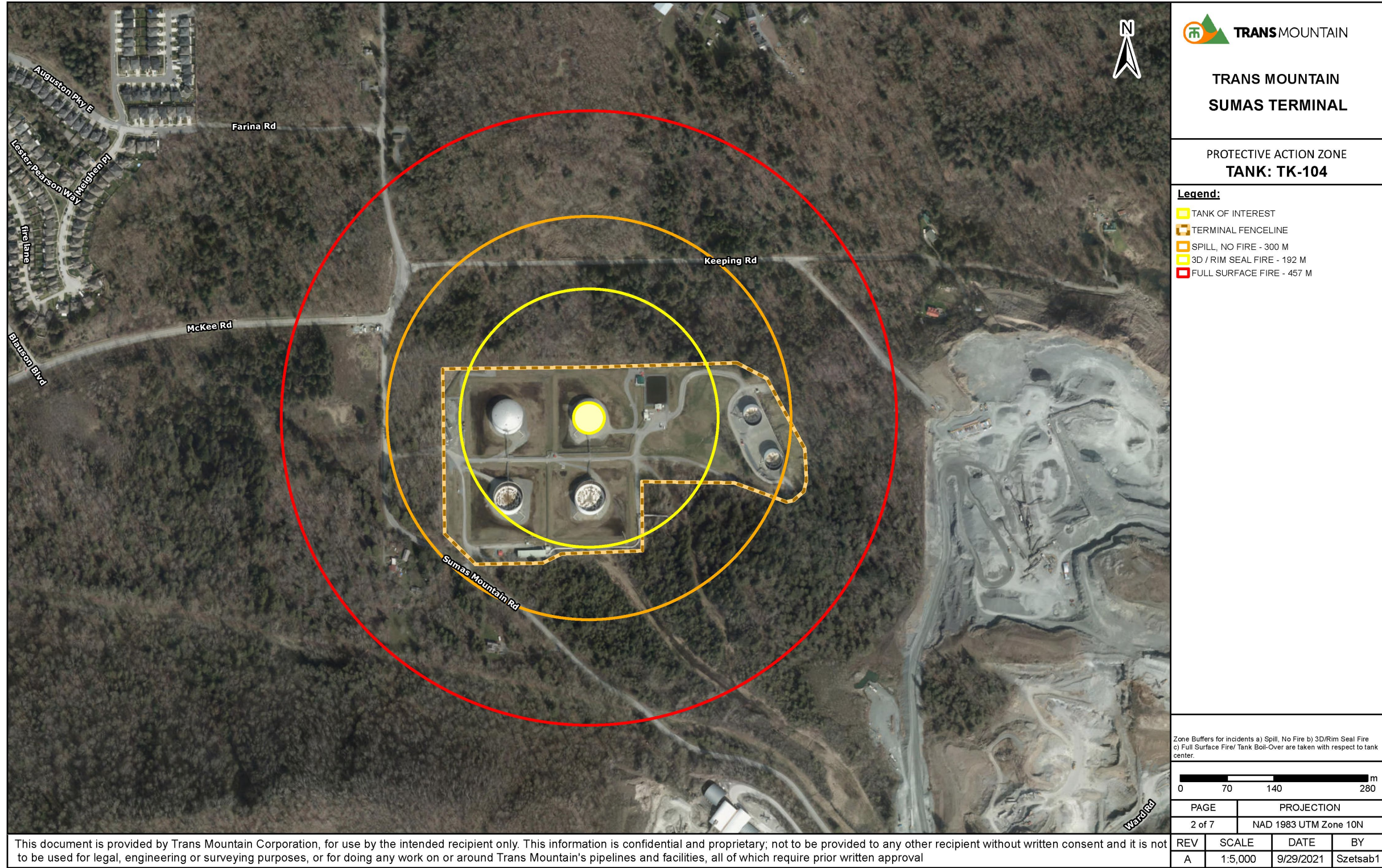
**Initial Isolation Zone – Tank 104**



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Sumas\_InitialIsolationZones\_20210929.mxd

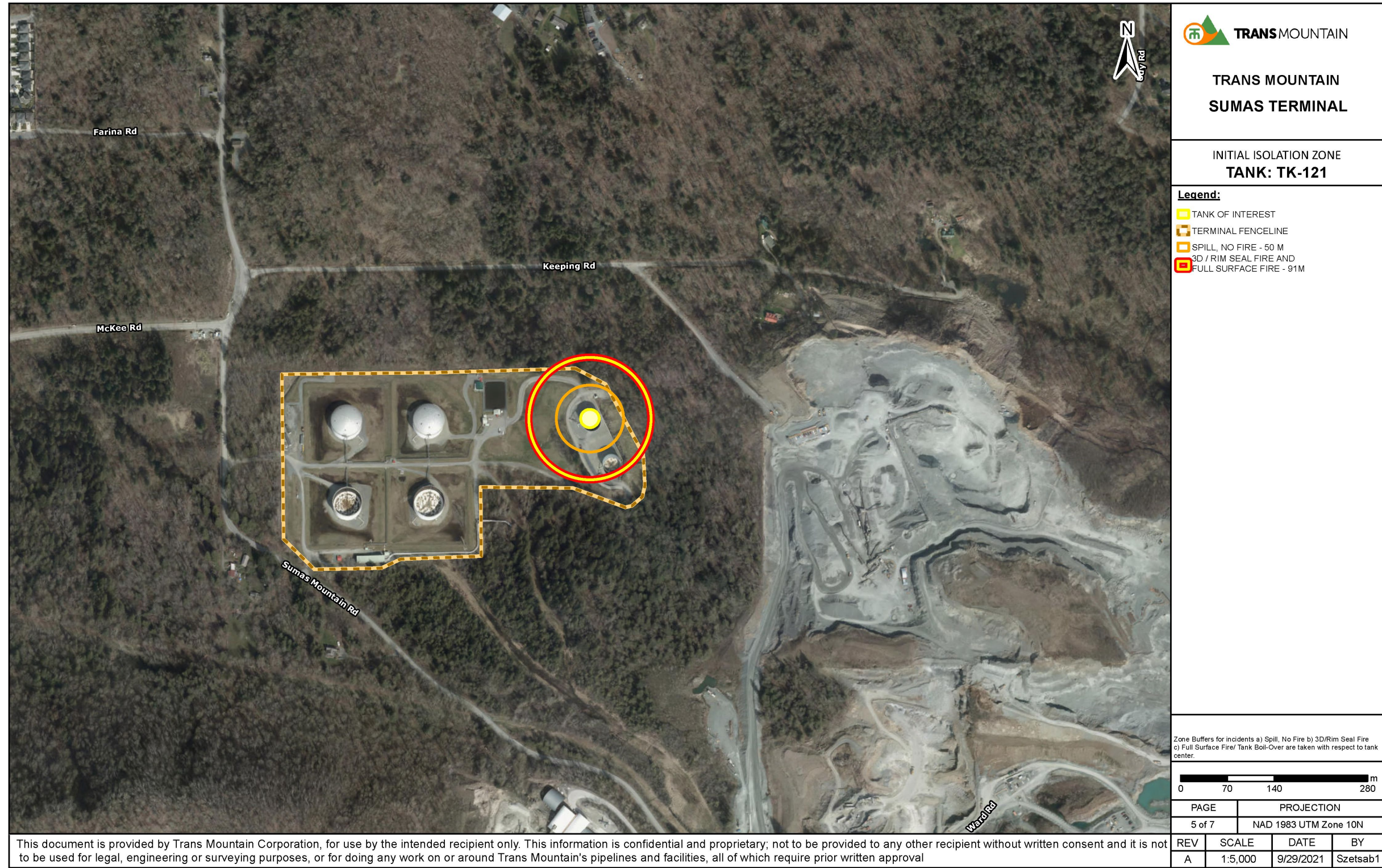
**Protective Action Zone – Tank 104**



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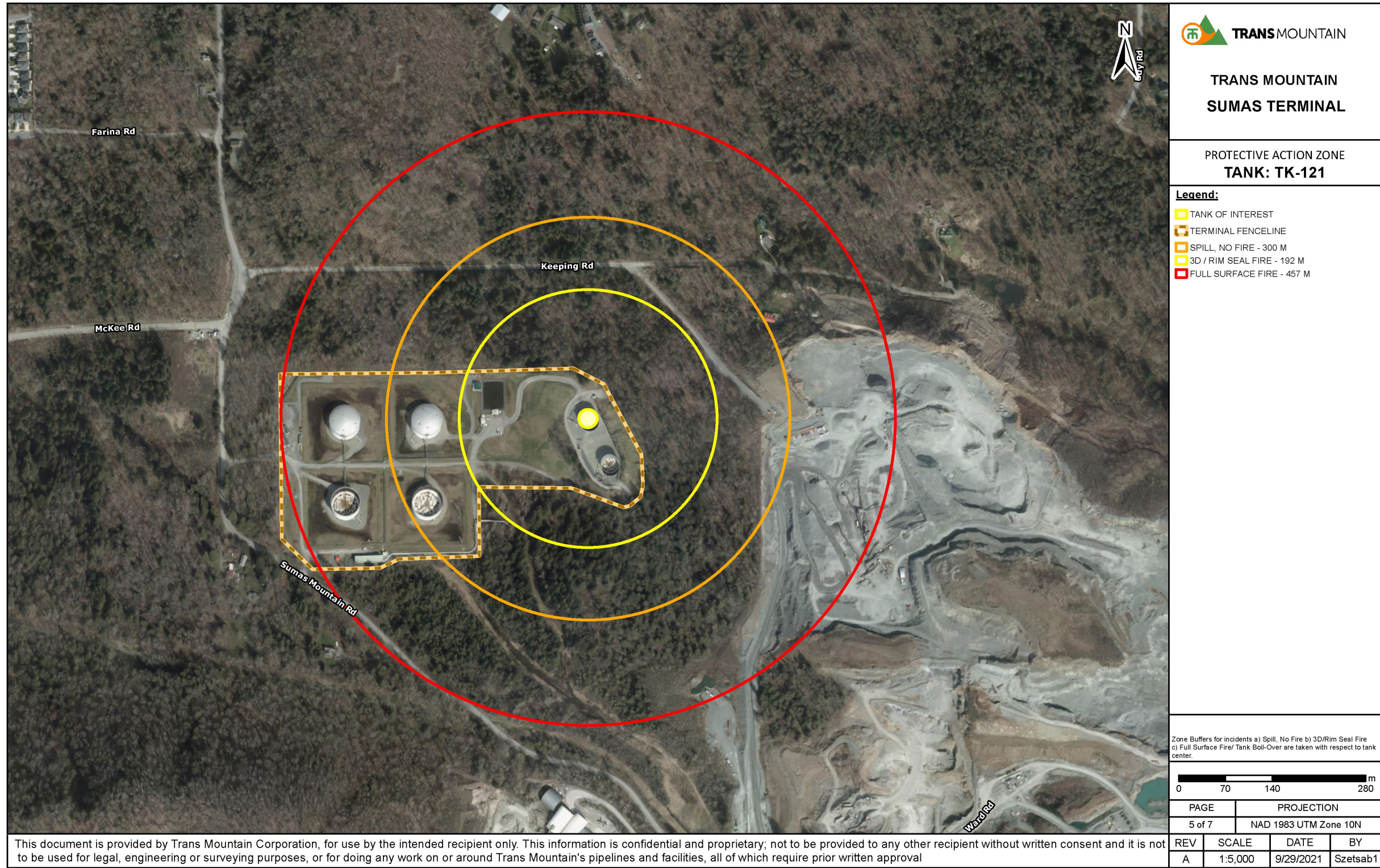
Sumas\_ProtectiveActionZones\_20210929.mxd

**Initial Isolation Zone – Tank 121**



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**Protective Action Zone – Tank 121**



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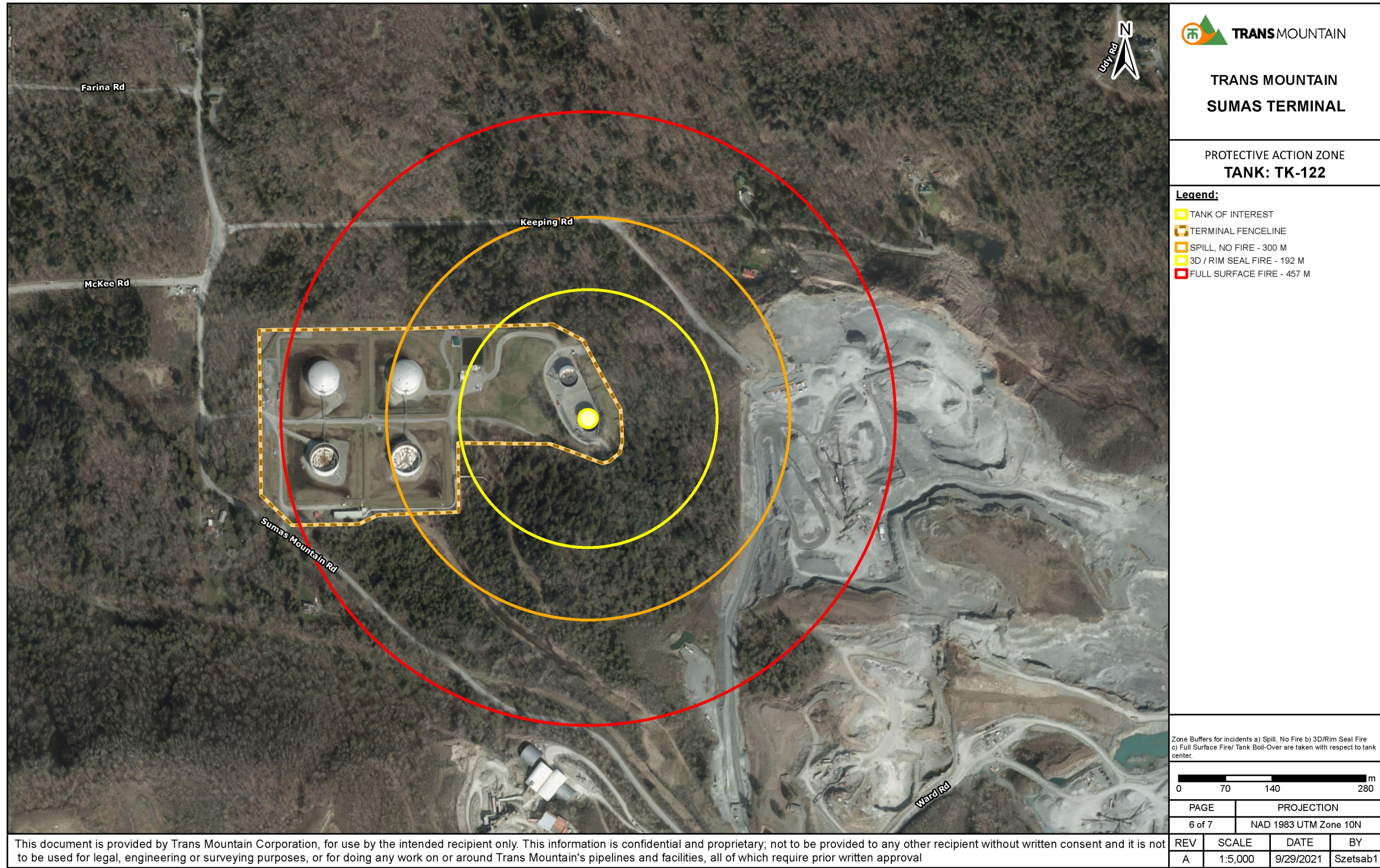
Sumas\_ProtectiveActionZones\_20210929.mxd

**Initial Isolation Zone – Tank 122**



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**Protective Action Zone – Tank 122**



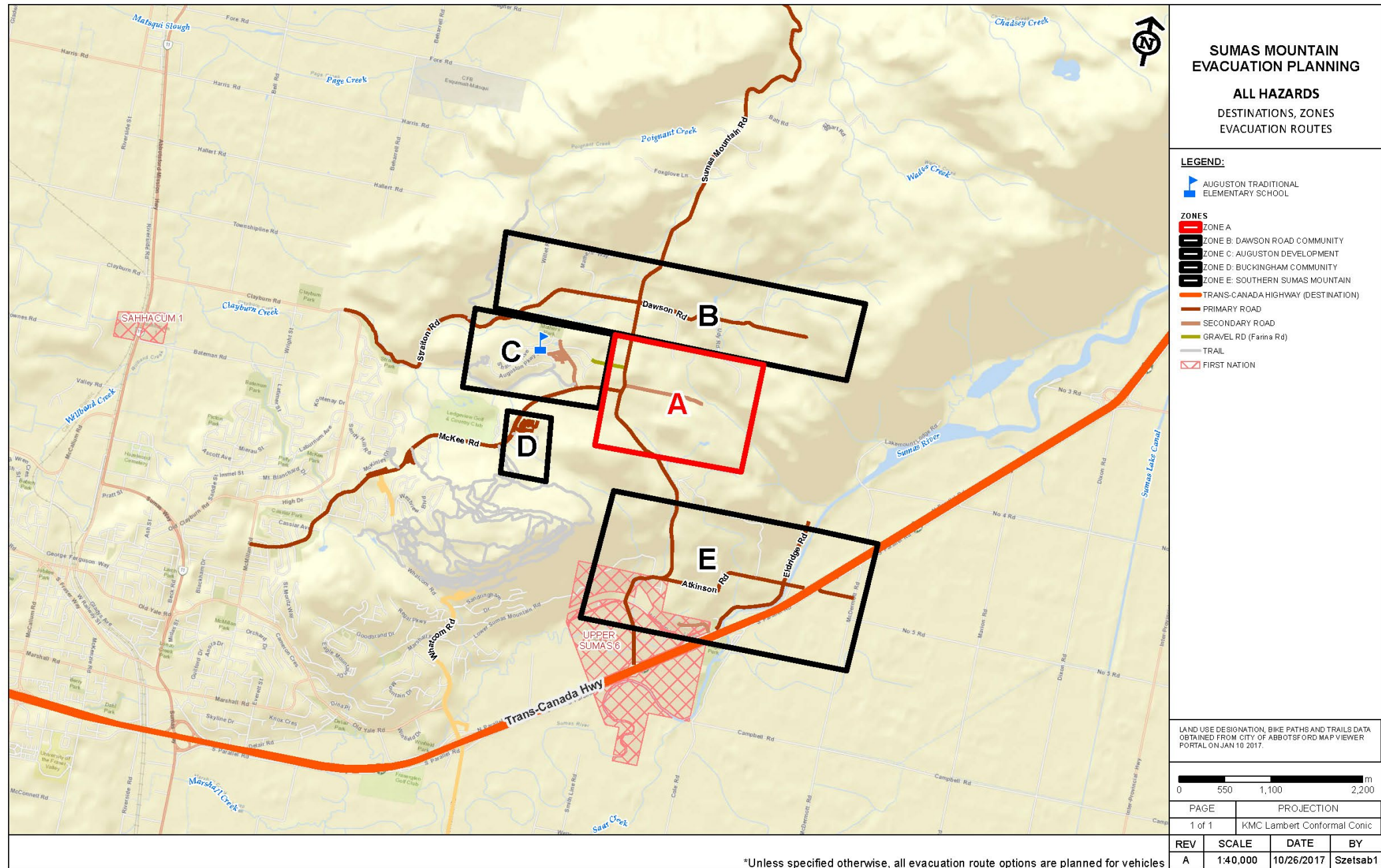
Sumas\_ProtectiveActionZones\_20210929.mxd



**APPENDIX H ANTICIPATED EVACUATION ROUTES**

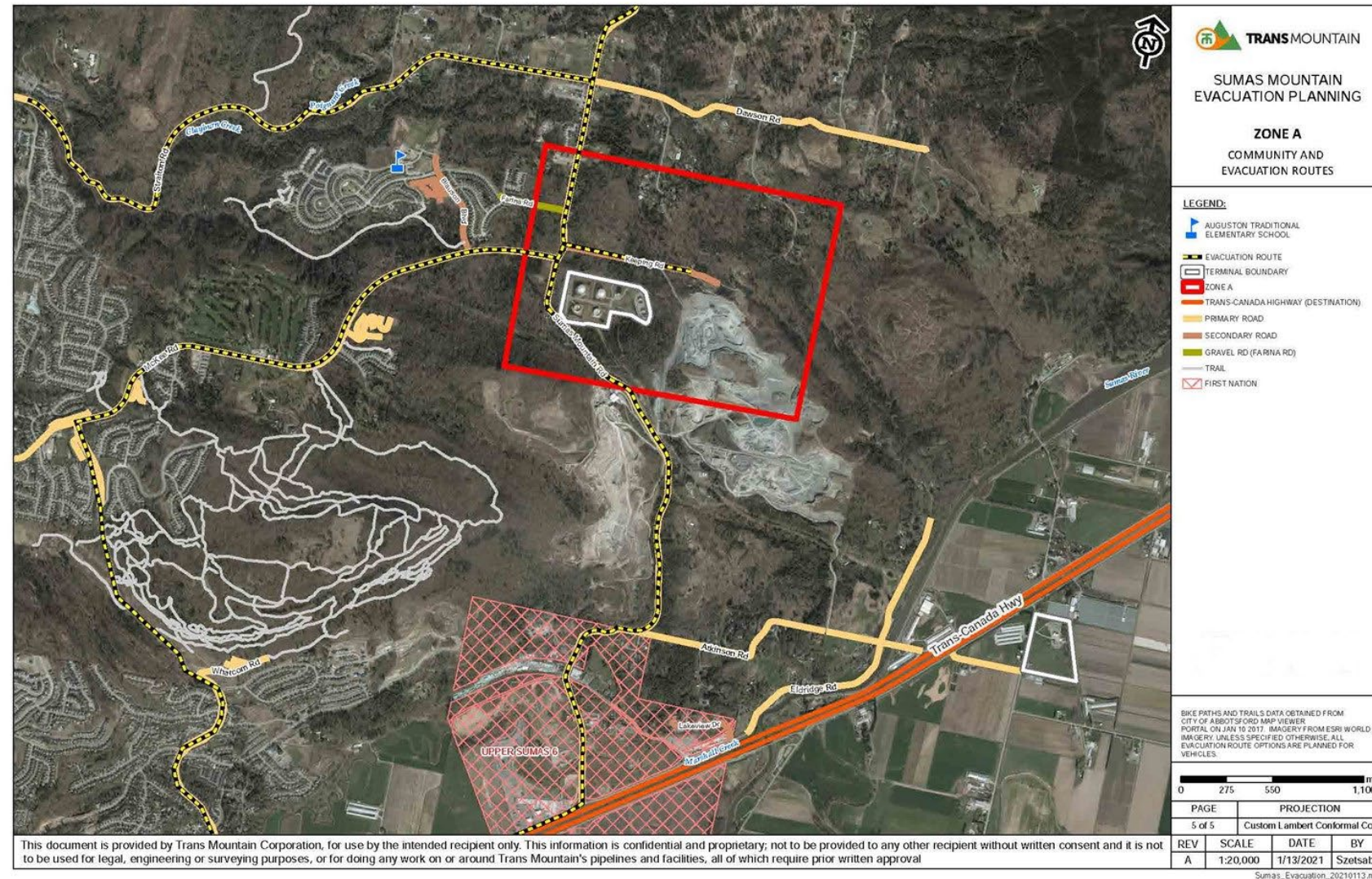
To aid in the evacuation of Sumas Mountain the City of Abbotsford has divided the area into five evacuation areas and prepared the following evacuation maps for each area:

- Zone A: Sumas Mountain Terminal Area
- Zone B: Dawson Road Community
- Zone C: Auguston Development
- Zone D: Buckingham Community
- Zone E: Southern Sumas Mountain



\*Unless specified otherwise, all evacuation route options are planned for vehicles

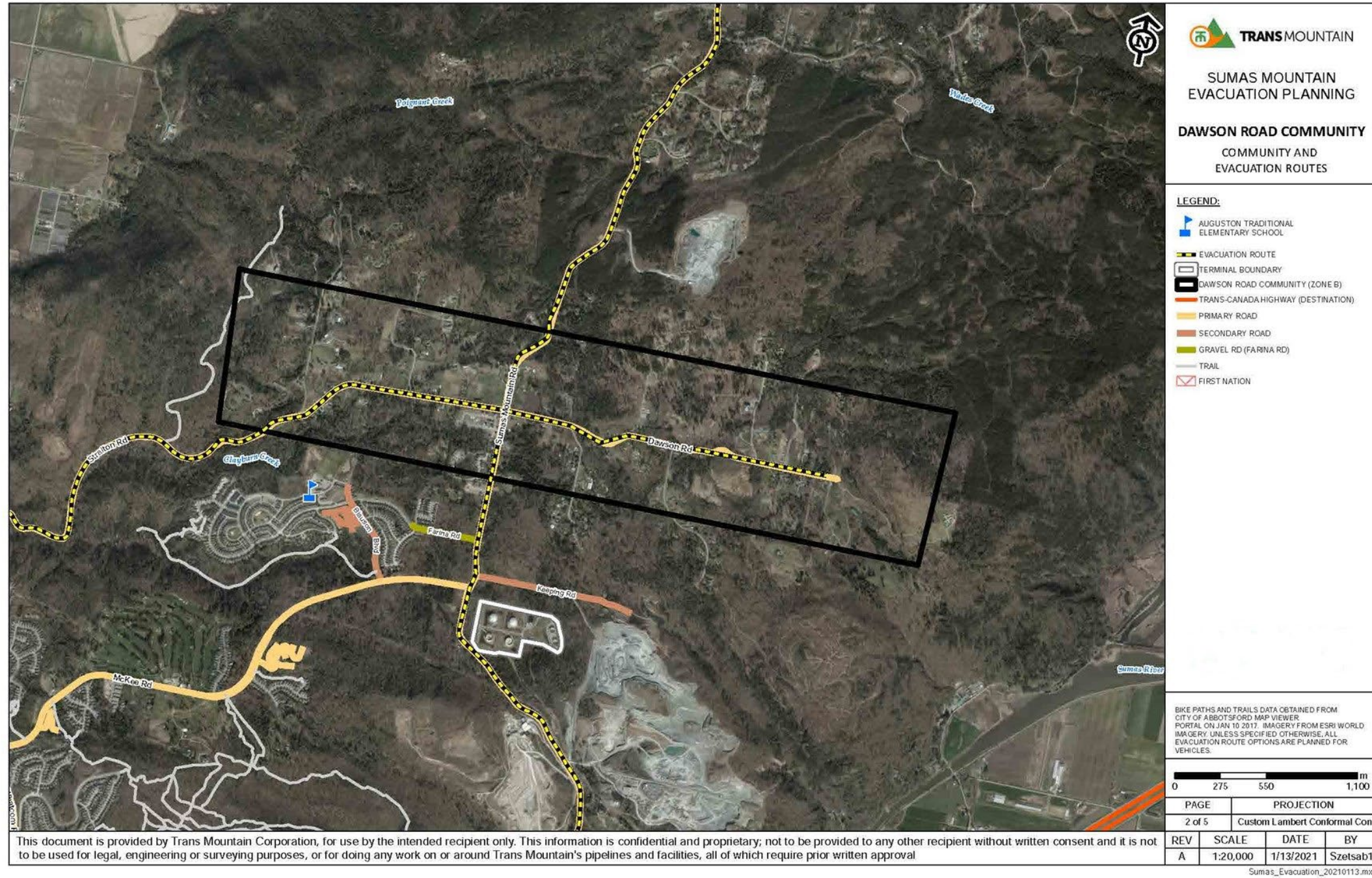
**Zone A: Sumas Mountain Terminal Area**



**Vehicle Evacuation Routes:**

- Head south on Sumas Mountain Road until reaching the highway.
- Head north on Sumas Mountain Road, it will eventually turn into "Upper Sumas Mountain Road", which parallels with the Fraser River; Upper Sumas Mountain Road will end at Page Road, leading evacuees to the Matsqui Prairie neighbourhood. Head north on Sumas Mountain Road. Once at Dawson Road, go west. Dawson Road turns into "Straiton Road", which leads into the Clayburn neighbourhood.
- Head north on Sumas Mountain Road until reaching McKee Road, then go west. McKee eventually intersects with Whatcom Road, which will lead to the highway.
- Head west on Keeping Road, head south on Sumas Mountain Road, then west onto McKee Road. McKee eventually intersects with Whatcom Road, which will lead to the highway.
- Head west on Keeping Road, then head south on Sumas Mountain Road until reaching the Highway.
- Head west on Keeping Road, head north on Sumas Mountain Road. It will eventually turn into "Upper Sumas Mountain Road", which parallels with the Fraser River; Upper Sumas Mountain Road will end at Page Road, leading evacuees to the Matsqui Prairie neighbourhood.
- Head west on Keeping Road, then north on Sumas Mountain Road. Once at Dawson Road, go west. Dawson Road turns into "Straiton Road", which leads into the Clayburn neighbourhood.

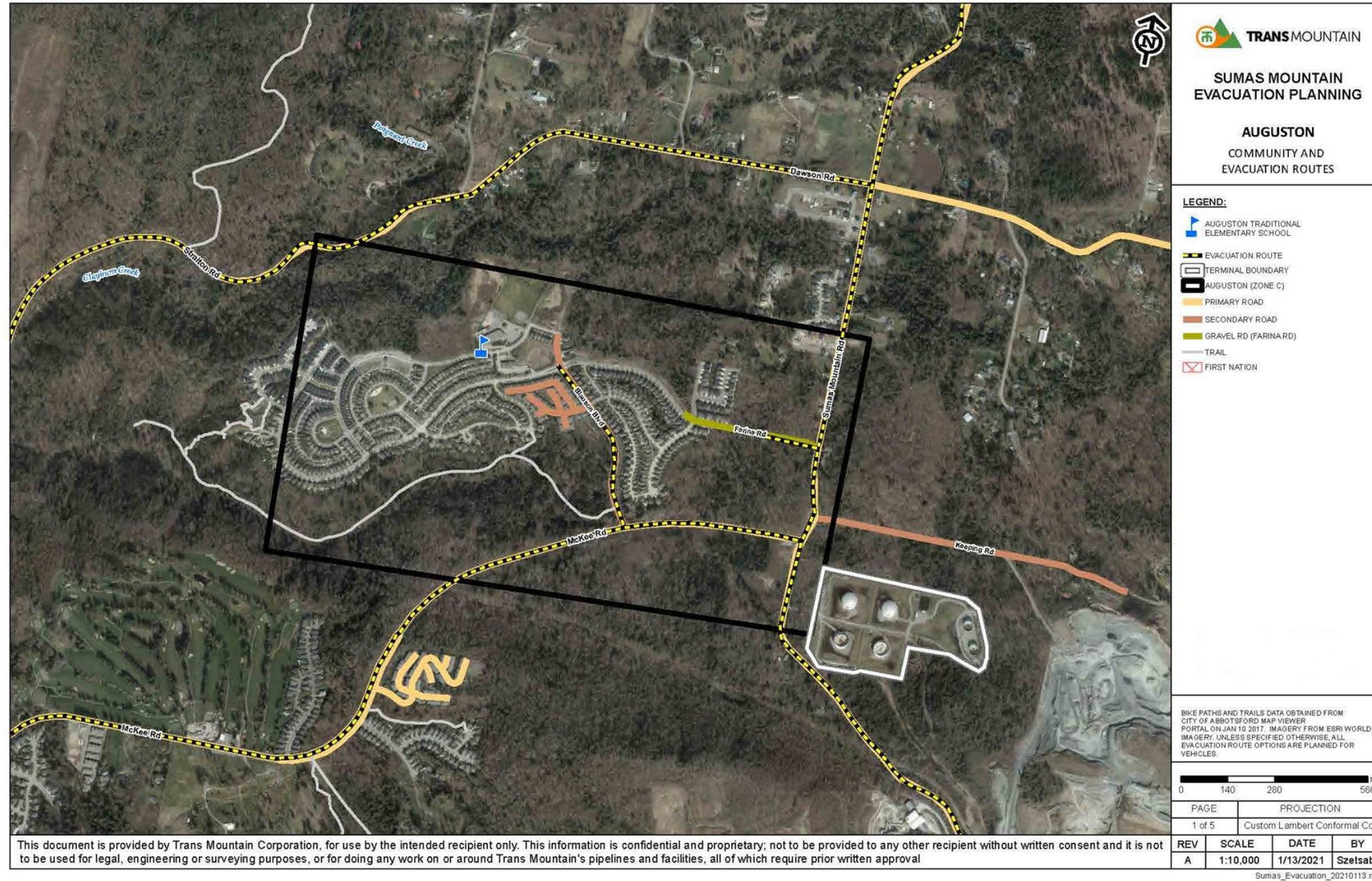
**Zone B: Dawson Road Community**



**Vehicle Evacuation Routes:**

- Make way onto Dawson Road and head west until it turns into Straiton Road, which will lead into the Clayburn neighbourhood.
- Make way onto Dawson Road, head towards Sumas Mountain Road. Once at Sumas Mountain Road, head north and it will eventually turn into "Upper Sumas Mountain Road", which parallels with the Fraser River. Upper Sumas Mountain Road will end at Page Road, leading evacuees to the Matsqui Prairie neighbourhood.

**Zone C: Auguston Development**

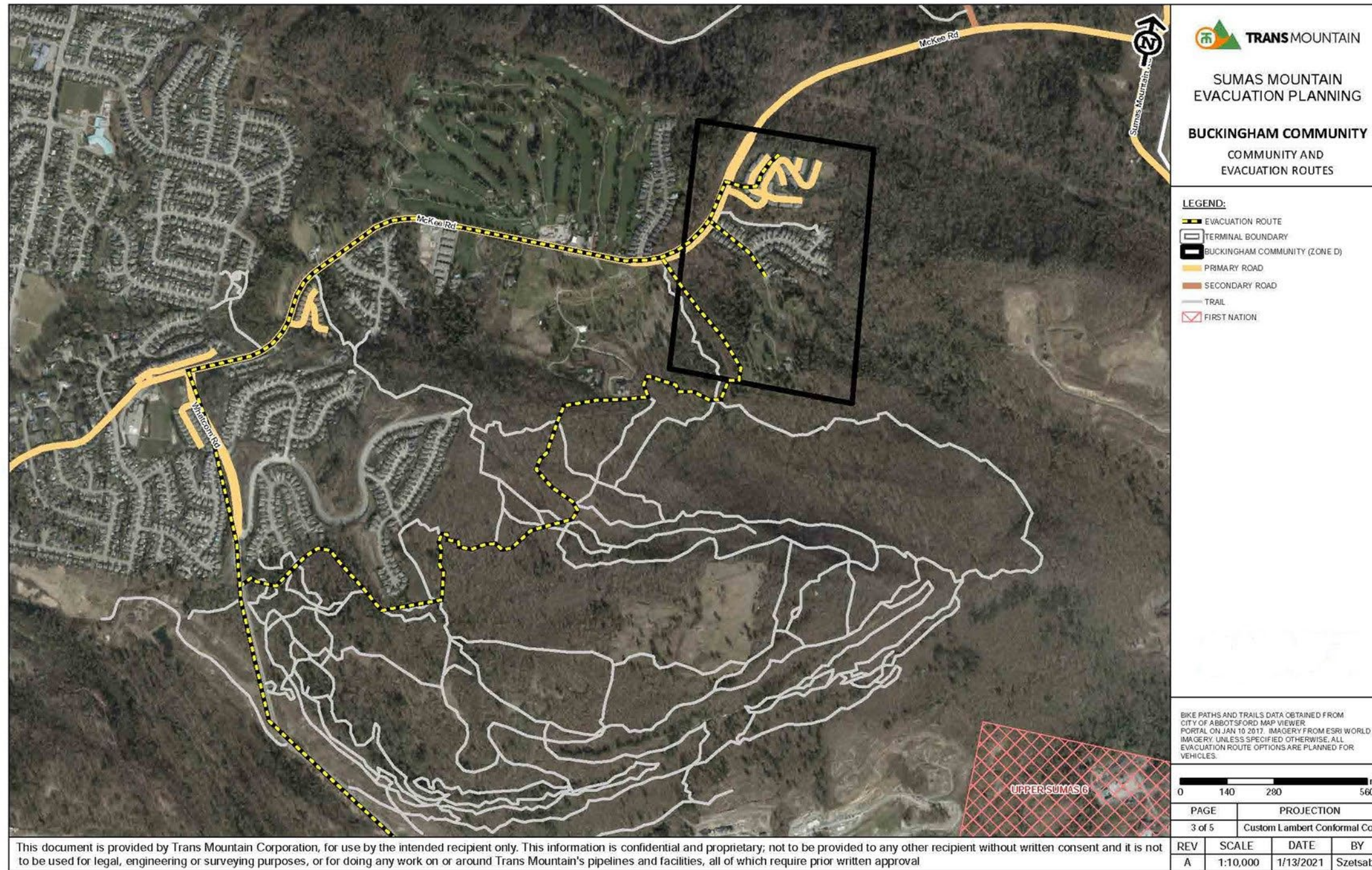


**Vehicle Evacuation Routes:**

- Head south on Blauson Boulevard, and west on McKee Road. McKee eventually intersects with Whatcom Road, which will lead to the highway.
- Head South on Blauson Boulevard, and east on McKee Road. Once at Sumas Mountain Road, head north. It will eventually turn into "Upper Sumas Mountain Road", which parallels with the Fraser River. Upper Sumas Mountain Road will end at Page Road, leading evacuees to the Matsqui Prairie neighbourhood.

Farina Road is normally NOT used for vehicles, but pedestrians. However, it can be used in an emergency if people in the "Auguston Development" are unable to use Blauson Boulevard.

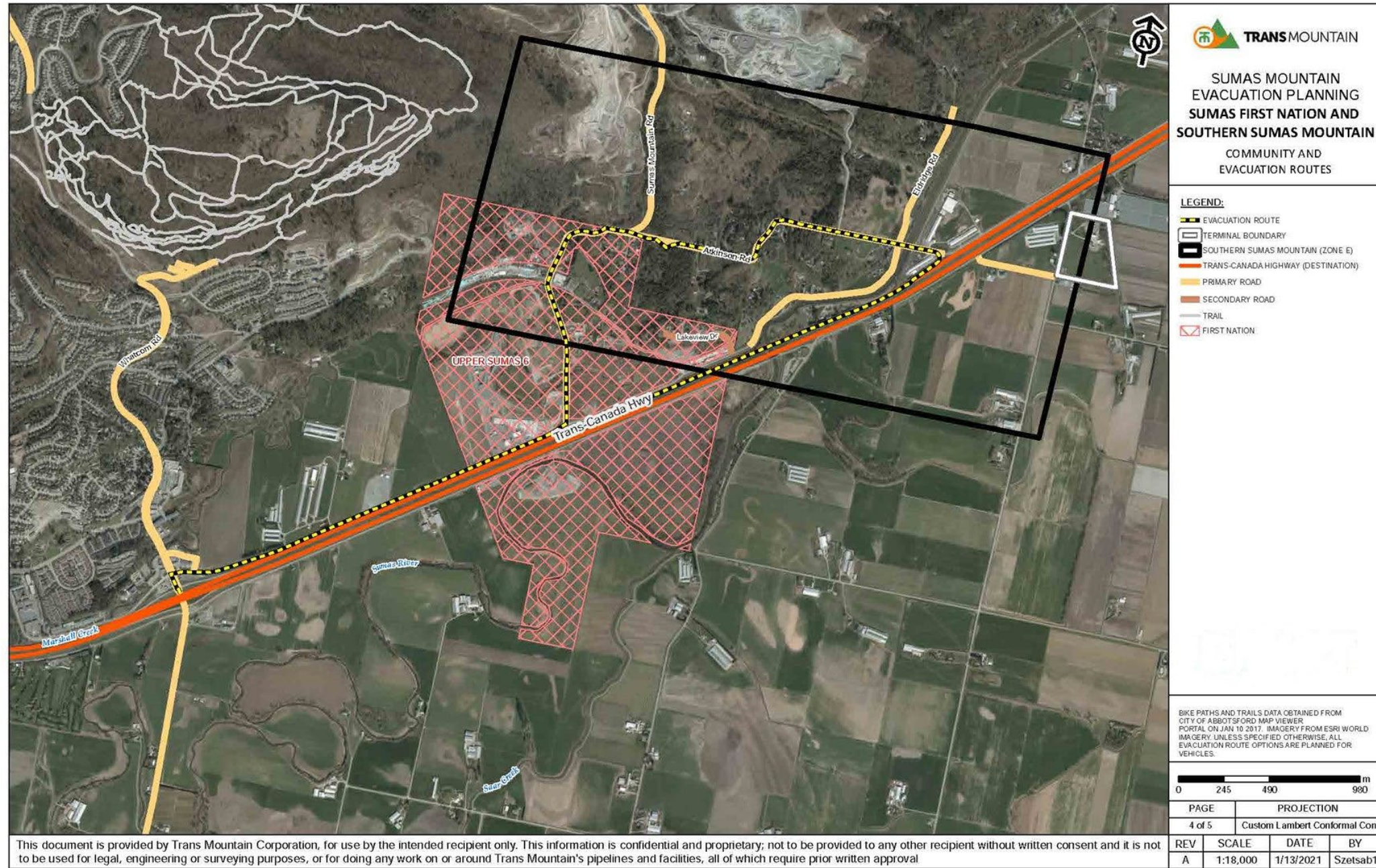
**Zone D: Buckingham Community**



**Vehicle Evacuation Routes:**

- Make way to McKee Road and turn to head west along McKee Road. At the intersection of McKee Road and Whatcom Road turn south, continue along Whatcom Road to the Trans Canada Highway (Hwy 1).

**Zone E: Sumas First Nation (Southern Area)**



**Vehicle Evacuation Routes:**

- Head south on Sumas Mountain Road until reaching the highway.
- Head north on Silver Way, then turn left (west) onto Sumas Mountain Road to go south until reaching the highway.
- Head north on Silver Way, then turn right (east) onto Atkinson Road. Continue Atkinson Road, which leads to the highway.
- Head north on Silver Way, then turn left (west) onto Sumas Mountain Road.